July 19, 1948

STEEL

The Magazine of Metalworking and Metalproducing

ESTABLISHED 1882

EDITORIAL INDEX, PAGE 53

Bailey

PIG CASTING MACHINES

For Open Hearth or Electric Furnaces — and Foundries

Metal cast direct from furnace

Cold pigs as delivered from machine

REDUCES LABOR COSTS .... LONGER LIFE,

because the Bailey Stationary Wheel design has fewer moving parts!

WILLIAM M. Bailey COMPANY

ENGINEERS

LEADERSHIP THROUGH QUALITY

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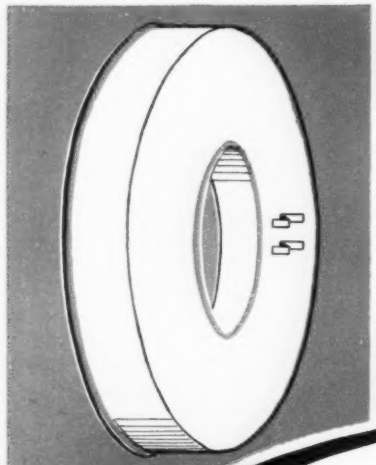


FIG. 1

FIG. 2

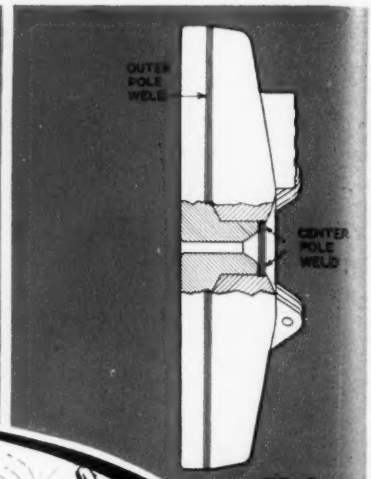
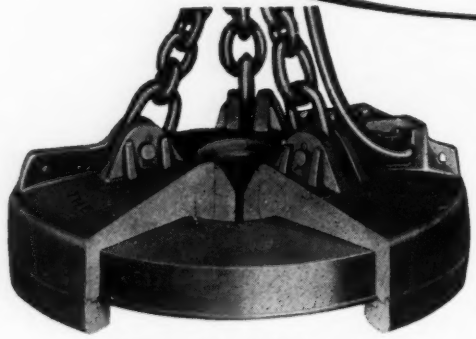


FIG. 3

The Type SW *All Welded* Magnet Construction Preserves Coil Life and Maintains Lifting Ability



Double-sealed against moisture —a water-tight coil within a water-tight housing.

No air-gaps—No cored holes for pole shoe bolts — instead, solid rings of metal which do *not* loosen from the magnet-housing.

PROLONGING magnet-life by keeping moisture out of the coil has been the goal of magnet engineers for years. EC&M has mastered this problem in the Type SW All-Welded magnet design. The coil, when wound on its steel spool, is jacketed in a steel case (Fig. 1 above). After vacuum-treatment, filling with No. 282 compound which is thermally-set by baking, this moisture-resistant unit is sealed into the magnet-housing by continuous welds (Fig. 2 above). Only the EC&M Type SW Magnet has this *double protection* for longer coil-life.

Eliminating air-gaps at the pole shoes has likewise been a troublesome expense to users of bolted magnets. Welds have often been added on outer shoes to keep the outer magnetic path tight, independent of the outer bolts, but center pole shoes were not designed to permit welding. The Type SW All-Welded magnet completely solves this problem—inner and outer shoes are held securely in place throughout their long life (Fig. 3 above). Air gaps do not form—either shoe can be renewed without extensive cleaning or truing up of mating magnet-surfaces—the tight SW construction preserves these surfaces for a snug fit. Only EC&M's Type SW Magnet has *both pole shoes* welded to keep lifting ability at top efficiency.

Type SW — an *All - Welded* Magnet of advanced design. Bulletin 900 shows the details which give *high output at low upkeep.* Write for your copy today.

THE ELECTRIC CONTROLLER & MFG. CO.

2698 EAST 79th STREET ★ CLEVELAND 4, OHIO

There's a Macwhyte Sling that's the right sling for any sized load

For safety and service, for easy handling of small loads or large, use Macwhyte Braided Wire Rope Slings. Our experienced sling engineers will recommend the *correct* sling for your equipment.

Send for your copy of the Macwhyte Sling Catalog S-7.

MACWHYTE WIRE ROPE SLINGS

NO. 949S

Member National Safety Council

The above unretouched photographs show the largest and smallest Macwhyte Slings catalogued. The two large hooks have a combined safe working load of 180,000 pounds. The two small hooks have a combined safe working load of 2400 pounds—based on a safety factor of 5.

(The top photo is the upper assembly of the same sling.)

Macwhyte Distributors throughout the U.S.A. and other countries. Mill Depots in the following cities: New York • Pittsburgh • Chicago Minneapolis • Fort Worth • Portland • Seattle • San Francisco Los Angeles

MACWHYTE COMPANY

2912 Fourteenth Avenue
Kenosha, Wisconsin

Manufacturers of Internally Lubricated *PRE*formed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies.

Behind the Scenes...

Barking Birds Don't Bite

Publicity releases that misfire are fairly common in publishing circles, and we are not any exceptions around here. We often receive stories via the Yewnited States Mail whose origin is obscure and whose purpose is obscurer, to coin a word. Last week one came to us for immediate release, bearing a letter whose final paragraph was designed to incite us to immediate action. Went like this: "We do intend as time goes on to have a complete coverage of national advertising, of which we are including the medium of the Penton Publishing Co." We must first overlook the fact that grammatical inaccuracies make this particular gem meaningless, and then we come to the fact that editors practically never get such items past their voluminous wastebaskets, having a particular aversion to items containing references to advertising. But what intrigued us most about this little number was the product slogan—"Does Not Bark the Bloom Of the Bird." That's a wonderful job, containing as it does not only what appears to be a slightly mixed metaphor, but a fair degree of alliteration and rhythmic possibilities. Also, we couldn't imagine what they were talking about—until we opened up the piece and read that it all referred to the "Do-All Feather King Poultry Picker."

Fooling While Flying

We have uncovered the secret hobby of one of our friends who is a metalworking executive of some years' standing. Many men have these idiosyncrasies, including such habits as counting mailboxes along country roads, drawing geometric figures in their telephone doodling, stepping over cracks in the sidewalk, and so on. This particular gentleman has developed one for the modern age. He sits in front seats of airliners and adds comments to the logs. On most flights, you know, the hostess will pop out of the pilot's cabin at intervals with little sheets of paper upon which you can read the approximate location, ground speed, tail or head wind, pilot's name and other important trivia of the journey. This friend of ours likes to add a couple of hundred miles to the airspeed, or write in the names of famous personages who are supposedly on board, and then watch the other passengers strain their necks as the log goes from passenger to passenger down the line. We'll have to admit this is all new to us. Our peeps at such logs have always been quite commonplace, with no amazing additions. Several weeks back, though, we did get a slight start when we were flying over Pennsylvania of a Thursday evening. The log was passed to us by the hostess and instead of the usual information in the proper blanks, the pilot had scrawled in very large black letters across the face of the sheet, "DEWEY III!"

Puzzle Corner

If you have been worrying about the coins on the scale for the past two weeks, please be advised that it can be accomplished in just three moves. We aren't going to take the space to provide all the possible combinations here, but we'll say that there are eighteen different combinations possible, depending on which coins you pick up to start with, and each combination gives you the false coin as well as telling you whether it was heavier or lighter than its fellows. For the hot weather, here's an oldie which requires no particular effort: Par for the course, 30 seconds or less! If I have six 4-link sections of chain, how much will it cost to make them into a single length if I pay a dime to open a link and a quarter to have it welded shut?

Ball Bearings!

Over in Sandusky, about 60 miles from Cleveland, New Departure has a brand new streamlined plant for producing ball bearings for the automotive industry. It's complete with the latest production equipment, ranging from forging machines to batteries of screw machines, ball grinders and inspection devices. You probably read about it in the June 7 issue of STEEL (pages 74, 75). You, along with quite a few thousand Sanduskians, also could have read the same story in the June 19 issue of the Sandusky Register-Star-News which reproduced STEEL'S picture story!

Shrdlu

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STEEL
Vol. 123—No. 3 July 19, 1948

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STEEL

The Magazine of Metalworking and Metalproducing

VOL. 123, NO. 3 JULY 19, 1948

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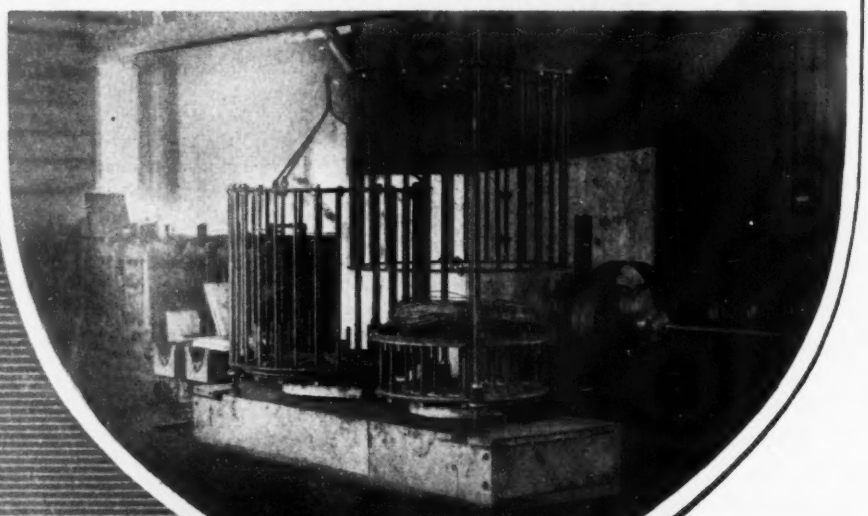
Time takes no holiday

Rolling mill methods are constantly changing—and *improving.* Each new mill is engineered to supersede the old in output, quality and efficiency.

BELOW . . . AN EARLY TYPE OF POURING REEL



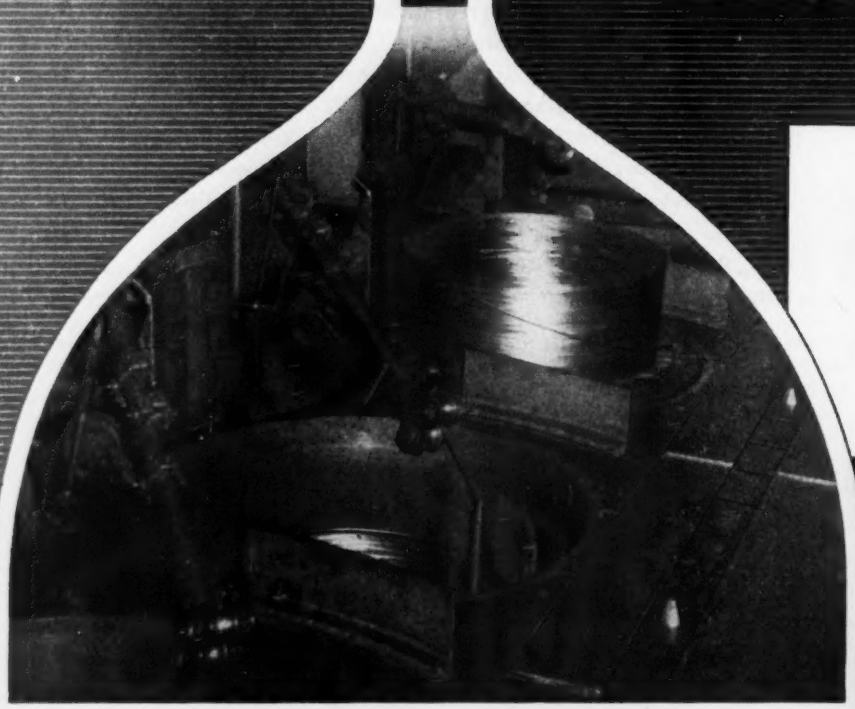
Since introducing the first successful continuous rod mill in 1888, Morgan designers have constantly added to the technology. Visualize this from the old and new pouring reels shown at left.

Close and frequent contacts with rolling mill designers is the *only* way to keep abreast of these developments.

Why not have one of our men visit you soon? . . . or better, plan a visit to Worcester and talk it over.

MORGAN CONSTRUCTION COMPANY
WORCESTER, MASSACHUSETTS

English Representative:
International Construction Co., 56 Kingsway, London, W. C. 2, England



ABOVE . . . MORGAN'S MODERN POURING REEL

MORGAN
WORCESTER

Rolling Mills - Morgoil Bearings - Wire Mills
Regenerative Furnace Control - Air Ejectors

RM-15

July 19, 1948

Unusual Strategy

Over a period of 145 years, 15 Presidents of the United States have called Congress into special session on 25 occasions. In almost every instance, the calls have been based upon specific problems or emergencies, such as the declaring of war, revising of tariffs, or consideration of economic or financial problems.

President Truman's reason for calling the 80th Congress back to the job on July 26, as stated frankly by him in his acceptance speech at Philadelphia, is purely political. He thinks that by calling the lawmakers back and by renewing his demands for legislation he has repeatedly advocated, he can create a fresh record of refusal on the part of Congress that will provide potent ammunition for his campaign for re-election.

It is not likely that the Truman message to Congress next week will contain demands that will affect business directly or immediately. However, many of the proposals he will make involve the welfare of the nation in vital ways. Thus, American business will have an important stake in the outcome of this unusual bit of Truman strategy.

The President probably will place major emphasis upon the need for laws to combat inflation and to help solve the housing problem, but in addition he undoubtedly will press for expansion of social security, extension of water control and power projects, a national health program and numerous other measures which he has considered as "must" legislation on previous occasions.

President Truman's idea of combatting inflation usually consists chiefly of laws that would restore OPA or something closely resembling it. Apparently he does not consider the inflationary aspects of huge government spending for the various projects he advocates. Nor does he recognize the futility of price controls when wages and numerous other pertinent factors remain either uncontrolled or subject to deliberate inflationary pressure from federal government action.

Put on the spot by a petulant President, members of the 80th Congress will be compelled, as before, to reject most of his proposals. If they can do something constructive about inflation or housing, it will be done in spite of Mr. Truman and not because he has done anything to help. As before, many Democrats will find it impossible to follow his lead.

* * *

PRODUCTIVITY GAINING: A survey conducted by the National Industrial Conference Board indicates that physical output per man-hour at the present time exceeds that of a year ago and also that of the 1939-1941 prewar period. Two-thirds of the companies canvassed reported that productivity is higher than in 1947, while 10 per cent reported that it is lower. Three out of five companies say productivity is higher than in the three-year prewar period.

The improvement was attributed most frequently to new and improved equipment and tools. Other factors mentioned are improved material flow, decreased labor turnover, better production methods and plant layouts, more efficient material handling and adoption of incentive plans.

It may be significant that the reporting companies seem to place more emphasis upon improved equipment and methods than upon the qualities of the employees. Only one of the factors mentioned, namely reduced labor turnover, involves the attitude of the worker direct-

(OVER)

ly. All of the other factors deal with improvements initiated by management for the purpose of augmenting the abilities of the employee or of offering him incentives so that he will be more productive.

Right now management is banking heavily on mechanical aids and better planning to increase productivity. Is there now or will there be soon attractive opportunities for management to achieve increased output per man-hour through the kind of human engineering which improves the worker's attitude toward his job? —p. 65

* * *

FREEDOM TO CHOOSE: **As manufacturers ponder implications of the steel industry's shift to f.o.b. mill pricing, many find they are confronted by a dual problem. It involves on one hand their ability to procure steel and the price they will pay for it, and on the other hand a question as to the pricing system they use for their own products.**

A glance at the table of mill sources of 34 steel products shows a heavy concentration geographically in Pennsylvania, Ohio, Illinois, Indiana, New York, Massachusetts and a few other states. A similar table showing the plant sources of manufactures, such as agricultural implements or electrical equipment, would show an even thinner distribution for many items.

Sooner or later pursuit of the various angles in f.o.b. pricing will lead consumers to realize that basing point, zone and similar pricing systems gave the buyer considerable freedom to choose from multiple sources of supply. How important is that freedom? —pp. 61, 62, 63

* * *

SURFACE STANDARDS: Two leading motor car manufacturers have been co-operating for two years on a project to develop acceptable surface specifications for metals. Their objective was to produce a master set of standard surface finish specimens from which exact replicas could be made.

Widely varying qualities in surfaces are created by orthodox grinding, machining, lapping or honing operations. It became apparent that the simplest way to develop workable standards was to make master specimens by ruling a geometric pattern on flat, polished gold plates with a diamond stylus. A machine capable of ruling grooves in a polished specimen up to 10,000 lines per inch with an accuracy of plus or minus 2 per cent was perfected.

The assignment assumed by General Motors and Chrysler Corp. is near completion and the specifications resulting from their work shortly will be available to all units of industry. This is a kind of pioneering effort that makes for definite technological progress. —p. 90

* * *

NOT A PARTY LINE-UP: No one expects an American political party's platform to be specific. The planks usually are drafted in terms broad enough to cover most shades of opinion within the party.

Notwithstanding this vogue for generalities, the labor planks in the platforms of the major parties differ sharply on a specific point. The GOP looks upon the Taft-Hartley Act as a "sensible reform of the labor law." The Democrats advocate repeal of the act, claiming it has "failed" to bring harmony in labor relations.

From the texts of these diametrically opposed planks, one would think that Republicans and Democrats are aligned for or against the law on party lines. The Democratic plank ignores the fact that 106 Democratic representatives and 20 Democratic senators—a majority of Democrats in Congress—voted with Republicans to enact the bill over the President's veto.

—p. 65

* * *

TRAINING AT CORNELL: Apropos of the machine tool sales refresher course now being conducted at Sibley College of Mechanical Engineering, Cornell University, it may be permissible to comment on the event in the form of a parody on "Hail Cornell":

Far above Cayuga's waters,
In famed Sibley's halls,
Toil three score machine tool salesmen,
Heeding duty's calls.
Keen to push their sales curves upward
And to better sell,
They pursue refresher courses.
Work them hard, Cornell!

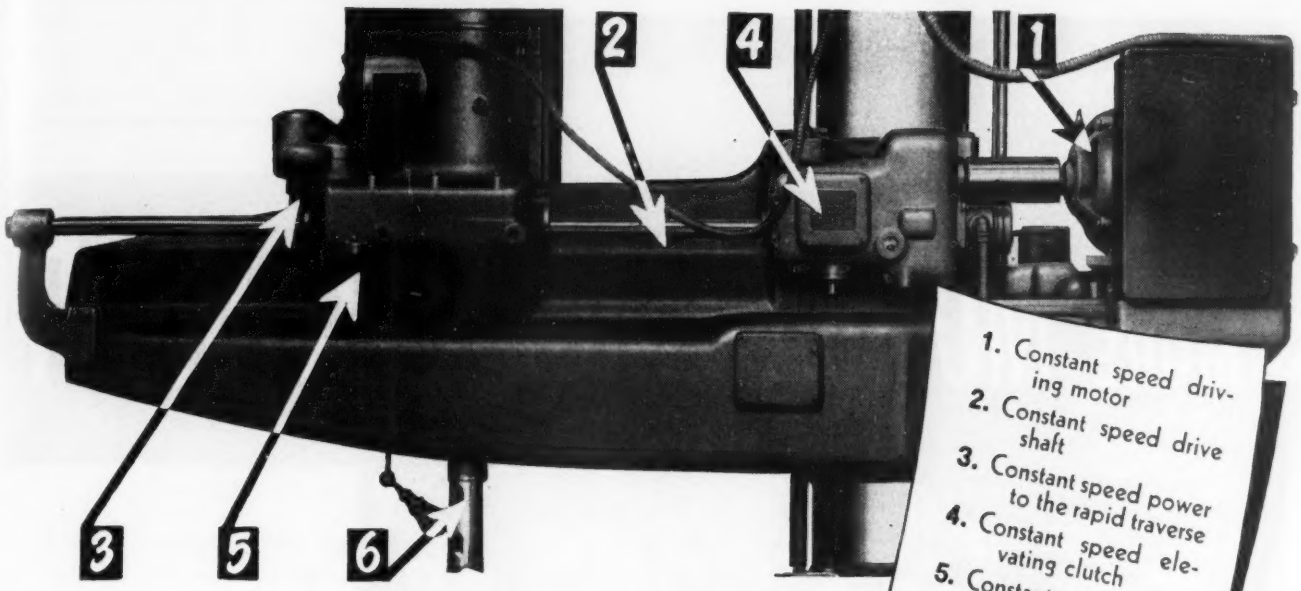
* * *

List'ning to the experts' lectures,
Twice on every day,
Makes the student know much better
Why machine tools pay.
When the course has been completed,
All will know full well
That a new concept in training
Dawned at old Cornell.

—pp. 66, 93

E. L. Shaner

EDITOR-IN-CHIEF

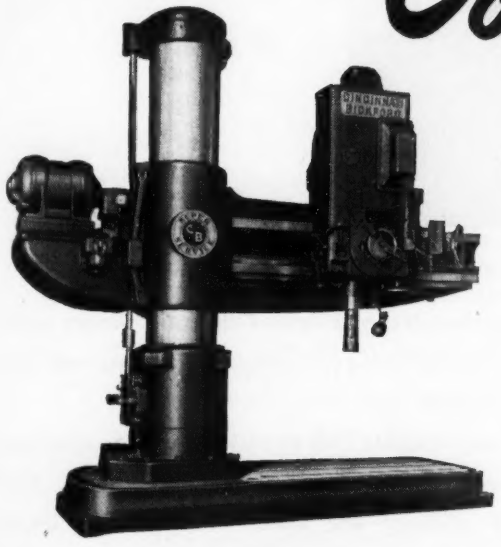


1. Constant speed driving motor
2. Constant speed drive shaft
3. Constant speed power to the rapid traverse
4. Constant speed elevating clutch
5. Constant speed driving clutch
6. Constant power at all spindle speeds

For PERFORMANCE . . . for ECONOMY

. . . for LONG LIFE

Constant Speed



The Cincinnati Bickford Constant Speed Drive gives many advantages: low initial cost, low maintenance cost, long life, and a fine drilling performance.

Cincinnati Bickford Constant Speed Driving Clutches have a long life and a maximum power delivery at all spindle speeds.

Power rapid traverse and power elevation of the arm, constant speed oil pump with its constant oil flow, all without the use of a single extra motor, are further advantages.

As all controls are at the head, and all gear changes are made without stopping the driving motor, Cincinnati Bickford Super Service Radial Drills are outstandingly easy for the operator to control.

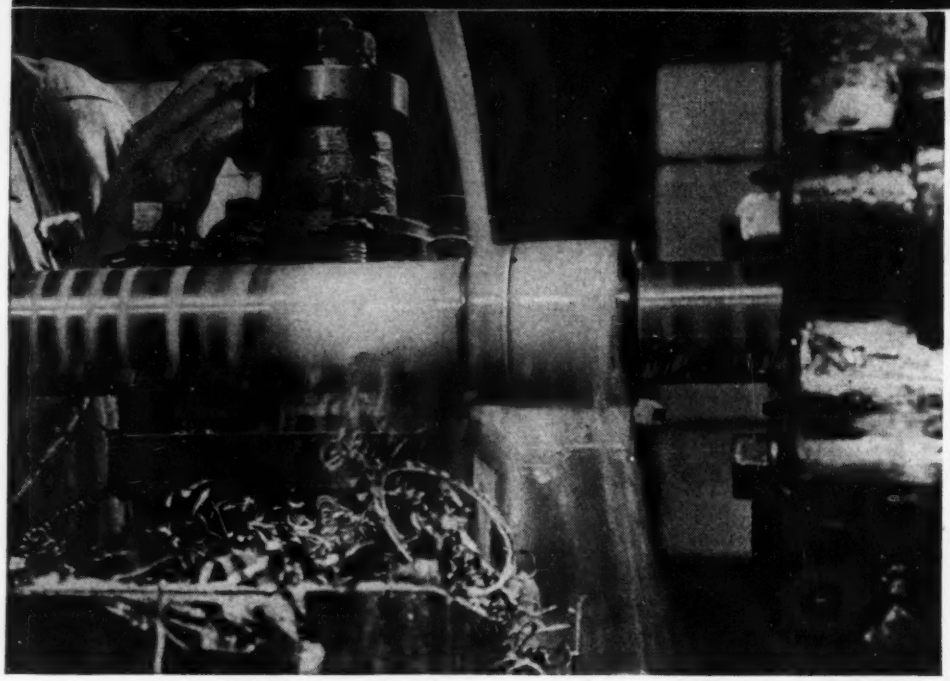
Write for Bulletin R-29.

THE CINCINNATI BICKFORD TOOL CO.
RADIAL AND UPRIGHT SUPER SERVICE DRILLING MACHINES
Radials 7½" dia. col., 2½" arm, to 26" dia. col., 12' arm.
General purpose Uprights, 21" to 28" sizes.
Production Uprights 21" to 28".
Jig Borers, Portable Horizontals, Spacing Table Machines.

Equal Efficiency of Every Unit Makes the Balanced Machine

THE CINCINNATI BICKFORD TOOL CO. **Cincinnati 9, Ohio U.S.A.**

NO MORE MONDAY MORNING ODOR*



* Unstable soluble oil emulsions generate an unpleasant odor, particularly noticeable on Monday mornings after weekend shutdowns — hence the name, "Monday morning odor." For stable emulsions, free of objectionable odors, use *Texaco Soluble Oils*.

Texaco Soluble Oil emulsions remain stable...do not develop disagreeable odors.

You can do away with "Monday morning odor" *once and for all*, by making your emulsions with *Texaco Soluble Oils*. They assure emulsion stability whether using hard or soft water.

This means not only freedom from objectionable odors, but other important benefits as well. As proved in hundreds of plants, *Texaco Soluble Oils* assure longer emulsion life . . . better tool performance . . . cleaner machines . . . freedom from rust.

Use *Texaco Soluble Oils* to make working conditions more pleasant for your operators . . . to increase your machining efficiency and lower your costs. A Texaco Lubrication Engineer will gladly give you full details.

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TEXACO

TEXACO CUTTING, SOLUBLE AND GRINDING OILS FOR FASTER MACHINING

Tune in...Texaco Star Theatre every Wednesday night featuring Gordon MacRae and Evelyn Knight...ABC Network

News Summary

PRICING—Steel consumers appraising the effects of the steel industry's changeover to an f.o.b. mill pricing system (p.61) often find the shift poses a double-pronged problem: 1) On incoming shipments of steel to their plants; and 2) on outgoing shipments of their products. Some have been selling under pricing systems which appear to be outlawed by the recent court interpretations of the law. If they change to f.o.b. plant pricing, these companies may find their marketing areas greatly restricted. Meanwhile the consumers continue to study freight rates and steel mill locations to ascertain where they will try to place their steel business (when they have a choice); a table of mill locations where leading products are produced (pp. 62, 63) should aid buyers under the new pricing setup.

PRICES, WAGES UP—On top of the confusion caused by the pricing changeover, consumers have a new worry—higher steel prices (p. 61). Unrelated to the switch to f.o.b. mill pricing, all the major companies are expected to place a new higher schedule of quotations on steel products in effect shortly, to compensate for a third round wage increase, advanced fuel costs and higher freight rates. The new wage increase alone will add about $3 a ton to the cost of producing finished steel.

PRODUCTION OUTLOOK BRIGHTENS—Settlement of the captive coal mine strike, decision to grant a generous wage increase to the steelworkers, and general stability in other labor sectors promises sustained high steelworks operations over the remainder of the year (p. 67). Output for the year may well reach or exceed 88 million tons of ingots, despite continuing shortages of scrap and other raw materials.

LABOR PRODUCTIVITY—Output per man-hour has improved during the past year and now is higher than in the immediate prewar years (p. 65). Improvement is credited chiefly to improved tools and equipment, although better material flow, lower labor turnover, better materials handling, etc. contribute.

CONGRESS' CHORE—Regardless of which party wins the November election consideration of several matters (p. 68) will have an important place on Congress' agenda. Of vital concern to the nation will be the attitude of the 81st Congress to such economic problems as wages, stabilization of employment, taxes, and current interpretation of antitrust laws. While some of these subjects may be brought up at the special session called by the President for July 26, topics of greater immediate political significance—such as civil rights, housing, etc.—probably will fully occupy the lawmakers in the pre-election battle with the administration.

INTERNATIONAL—French anti-inflation measures, reducing prices of manufactured goods and ultimately of food (p. 71), will not be of major significance until production is great enough to warrant abandonment of subsidies. Iron and steel production on the Continent shows improvement over last year despite shortages and breakdown of war-weary equipment. Canadian steel and steel products producers are mapping expansion programs (p. 79). The country's April output of 13 of its 16 principal minerals is above 1947 levels.

TRANSPORTATION—Technological advances in railroad transportation and the country's economic dependence on this mode of travel will be pointed up at the Railroad Fair beginning this week (p. 73) in Chicago. Observers in motordom's capital see (p. 75) railroads losing out on revenue as f.o.b. mill pricing cuts down the present tremendous volume of cross-hauling.

HERE AND THERE IN INDUSTRY—Revival of military aircraft production prompted Parker Appliance Co. to double (p. 78) its West Coast manufacturing facilities for components. . . Shipbuilders (p. 68) are not jumping at the chance to get a slice of government money for new vessels; future subsidies may be more attractive. . . Non-agricultural and total civilian employment (p. 80) reached all-time peaks in June. . . Nationalization of the British steel industry, if stalled off (p. 72), may be a crucial election issue.

A Thousand Improvements a Year!

We at Ryerson believe that constant improvement in every operation is the key to good steel-service. We continually invent, revamp, revise, reorganize—*improve*. Best of all, our employees help show us the way.

Last year, for instance, our employees submitted a total of 3,686 suggestions, each of which described a procedure, policy or piece of equipment designed to improve the efficiency of our steel service. Of the 3,686 ideas, 1,379 proved worthy of cash awards and are now being used to the ultimate benefit of Ryerson customers. Accepted suggestions ranged from a method of speeding the paper work in processing an order to more accurate gauges for our biggest friction saws.

This willingness of our entire organization to help achieve maximum efficiency is one reason we are able to promise you a steel-service that's intelligent, ever alert to do the job still better. Encouraged to advance their own ideas, our employees often assist in determining practical alternates when great demand causes shortages of the steel you need. To put this kind of service to work for you, contact the nearest Ryerson plant next time you need steel. You can be sure we shall do our best to serve you.

PRINCIPAL PRODUCTS

BARS—Carbon and alloy, hot rolled and cold fin., reinforcing

STRUCTURALS — Channels, angles, beams, etc.

PLATES—Sheared and U. M., Inland 4-Way Floor Plate

SHEETS—Hot and cold rolled, many types and coatings

TUBING — Seamless and welded, mechanical and boiler tubes

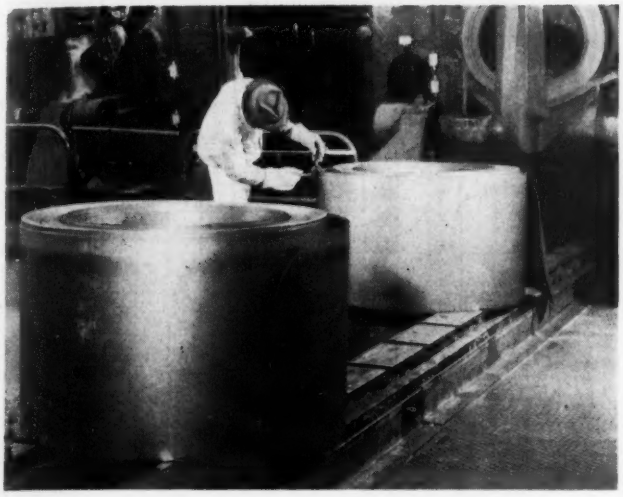
STAINLESS — Allegheny sheets, plates, tubes, etc.

MACHINERY & TOOLS—for metal working

Joseph T. Ryerson & Son, Inc. Plants: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco.

RYERSON STEEL

STEEL
A PENTON PUBLICATION



NOT only are shipments of finished steel products to metalworking plants affected by the industry's changeover to f.o.b. mill pricing . . . .

. . . BUT the pricing of many products made of steel, including farm machinery, bolts and nuts, electrical equipment, also may face changes

Steel Consumers Have Own Pricing Problems

Metalworking industries scrutinize selling methods for legality. Some will be forced to change, with consequent restriction of markets. Meanwhile steel prices go up

MANY metalworking companies are finding they are confronted by a dual problem as result of the steel industry's shift to an f.o.b. mill pricing system.

Not only does this change alter their whole problem of steel procurement, but it also raises serious questions as to their own pricing methods.

Some metalworking companies have been selling on a multiple basing point system, which has been outlawed by the Supreme Court in the Cement decision. Others have been selling on zone pricing system, which also may be illegal. Various other methods embody systematic freight absorption or otherwise result in identical delivered prices and must be subjected to close scrutiny as to legality.

Abandonment of these historic pricing methods by some metalworking companies may cause considerably greater hardship to them than the changeover by the steel industry. Manufacturers of goods made of steel who shift to f.o.b. pricing may find their markets dangerously restricted. Confusion, at least temporarily, is certain to reign in many market places.

Prices, Wages Go Up

MEANWHILE, steel consumers are faced with another problem—a new and substantial increase in steel prices. These increases, being drafted late last week, are necessitated by third round wage increases being granted the United Steelworkers, by higher coal prices, increased freight rates and other advances in steelmaking costs.

The new increases in steel prices have no connection with the changeover to f.o.b. mill pricing, which was necessary to conform to the law as interpreted by the Supreme Court in recent decisions.

The steel price increases stem primarily from third round wage advances. The steel industry has abandoned its earlier anti-inflation program of holding wages unchanged and cutting prices and will grant a substantial raise in wages to its workers. United States Steel Corp. late last week was considering an offer of 8 to 9 per cent in wage rates, plus some social insurance benefits. Such an increase would average 12½ to 11 cents an hour for steelworkers and would raise the industry's annual wage bill by $175 to $200 million annually, roughly equivalent to $3 a ton of finished steel produced. These figures do not include added social security costs, estimated as high as 4 cents an hour.

Timken Roller Bearing Co., Canton, O., has raised wages 14 cents an hour and boosted prices 5 per cent.

Other Costs Up—Since launching its noble experiment in fighting inflation last April the steel industry has been confronted with steadily rising costs. Freight rates were advanced May 6 and another increase was considered imminent late last week. Coal and coke costs were boosted substantially by the recent mine wage settlement. Costs of other materials and equipment have risen in line with the general inflation.

Majority Changes Over

COMPANIES producing a majority of finished steel output already have announced changeover to the f.o.b mill pricing system, and others indicated they will follow soon. Producers are abandoning the multiple basing point system reluctantly. They say they must do so to con-

(*Please turn to Page 64*)

GUIDE FOR STEEL BUYERS UNDER T

Geographical Location of Facilities for

	BARS			SHEETS				STRIP		BLACK PLATE	TIN AND TERNE PLATE		PLATES	SHAPES		WIRE RODS	WIRE		WIRE PRODUCTS				SKELP	SEAMLESS ROUNDS	PIPES & TUBING				RAILROAD SUPPLIES					BOLTS-NUTS-RIVETS
	Hot-Rolled	Cold-Finished	Reinforcing	Hot-Rolled	Cold-Rolled	Galvanized	Long Ternes	Hot-Rolled	Cold-Rolled		Tin	Terne		Structurals	Steel Piling		Plain	Galvanized	Barbed	Nails-Staples	Fence	Bale Ties			Butt-Weld	Lap-Weld	Elec.-Weld	Seamless	Rails	Track Bolts	Tie Plates	Splice Bars	Spikes	
ALA.--Anniston	X												X	X																			
Bessemer	X							X																									
Birmingham	X		X													X	X																
Ensley																																	
Fairfield	X			X		X		X		X	X	X	X	X		X	X	X	X	X	X	X							X		X	X	X	X
Gadsden	X			X		X							X			X	X	X	X	X	X	X											X
CALIF.--Azusa																											X						
Emeryville	X		X											X																			
Fontana	X								X				X	X									X										
Los Angeles	X	X	X						X					X			X	X				X					X		X		X	X	
Niles	X																				X												
Oakland																					X												
Pittsburg	X		X	X		X		X		X	X					X	X	X	X	X	X												
San Francisco	X		X		X	X		X			X			X		X	X	X	X	X	X	X			X					X		X	X
Torrance	X		X	X		X		X						X																			
COLO.--Pueblo	X		X					X					X	X		X	X	X	X	X	X	X							X	X	X	X	X	X
CONN.--Branford																	X	X															
Bristol									X																								
Hartford		X																															
New Britain									X																								
New Haven									X								X	X															
Putnam		X																															
Shelton																	X																
Wallingford									X																								
DEL.--Claymont													X																				
GA.--Atlanta	X		X					X								X	X	X	X	X	X	X											X
ILL.--Alton	X		X					X								X	X	X						X									
Chicago	X	X	X		X			X	X				X	X		X	X	X	X	X	X	X	X	X									
Evanston																											X						
Franklin Park		X																															
Granite City				X	X	X					X	X	X																				
Harvey		X																															
Joliet	X															X	X	X	X	X	X	X											X	X
Madison	X		X																														
Moline	X																																
Peoria																X	X	X	X	X	X												
Sterling																X	X	X	X	X	X	X											
Waukegan		X															X	X															
IND.--Anderson									X																								
Crawfordsville																	X	X	X	X	X	X											
East Chicago	X		X	X	X			X	X		X	X	X	X									X		X	X					X		
Fort Wayne	X	X																															
Gary	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X							X		X	X	X
Hammond		X																															
Indiana Harbor	X		X	X	X	X		X	X		X	X	X	X	X									X					X		X	X	X	X
Indianapolis		X		X		X																											
Kokomo				X		X										X	X	X	X	X	X												
New Castle				X									X																				
Terre Haute	X																																
IOWA--Davenport																	X	X	X	X	X	X											
KY.--Ashland				X		X							X																				
Newport				X		X	X																										
MD.--Baltimore	X	X		X	X											X	X																
Cumberland		X																															
Sparrows Point			X	X	X	X					X	X	X	X		X	X	X	X	X		X	X		X	X			X				
MASS.--Holyoke																	X																
Medford	X		X																														
Mansfield		X																															
Mallapan									X																								
Millbury																	X																
Palmer																	X	X		X													
Readville		X																															
Spencer																	X																
Wareham																				X													
Worcester	X	X							X							X	X	X		X													
MICH.--Adrian																					X												
Dearborn	X			X	X			X	X							X	X																
Detroit	X	X	X	X	X			X	X				X										X				X	X					
Ferndale																											X						
Niles																	X	X															
Plymouth		X																										X					
South Lyons																												X					
MINN.--Duluth	X							X						X		X	X	X	X	X	X	X											
Minneapolis																																	X
MO.--Kansas City	X		X	X									X			X	X	X	X	X	X	X											X
St. Louis	X	X	X																														X
N.J.--Clifton									X																								
Dover																																	X
Harrison	X	X							X							X	X																
Jersey City	X																																X
Newark	X	X														X	X			X													X
New Brunswick																	X																
Rockaway	X																																
Trenton								X	X							X	X	X															X
Union									X																								
Wallington																											X						
N.Y.--Brooklyn																											X						
Buffalo	X	X															X																
Cortland	X															X	X	X	X	X													
Dunkirk	X	X														X	X																
Elmira																																	X
Lackawanna	X	X	X	X		X	X	X	X				X	X	X														X		X	X		
Lockport	X			X				X	X				X																				
New York									X								X																
Rome									X																		X						
Syracuse	X	X							X							X	X																
Tonawanda	X	X	X					X	X							X	X	X		X	X								X			X	X
Troy																															X		
Watervliet	X	X																															
OHIO--Akron																	X	X															
Alliance																											X						

THE NEW F.O.B. PRICING SYSTEM

...for Producing Principal Steel Products

	BARS			SHEETS				STRIP		BLACK PLATE	TIN AND TERNE PLATE		PLATES	SHAPES		WIRE RODS	WIRE		WIRE PRODUCTS				SKELP	SEAMLESS ROUNDS	PIPES & TUBING				RAILROAD SUPPLIES				BOLTS-NUTS-RIVETS
	Hot-Rolled	Cold Finished	Reinforcing	Hot-Rolled	Cold-Rolled	Galvanized	Long Ternes	Hot-Rolled	Cold-Rolled		Tin	Terne		Structurals	Steel Piling		Plain	Galvanized	Barbed	Nails-Staples	Fence	Bale Ties			Butt-Weld	Lap-Weld	Elec.-Weld	Seamless	Rails	Track Bolts	Tie Plates	Splice Bars	Spikes	
OHIO--Berea	...	...	...	...	...	...	...	...	X	...	...	...	...	X	X	...	X	X	X	...	X	...	...	X	...	...	...	...	...	...	...	...	X	...
Campbell	X	...	X	X	X	...	X	X	X	...	...	...	X	X	...	X	X	X	X	...	X	...	...	X	...	...	X	X	...	...	...	...	X	...
Canton	X	X	...	X	...	X	X	...	...	...	...	...	X	...	...	...	X	X	...	...	...	...	...	X	...	...	X	X	...	...	...	...	...	...
Cleveland	X	X	...	X	X	...	...	X	X	...	...	...	X	...	...	X	X	X	...	X	...	...	...	...	...	...	X	...	...	X	...	...	...	X
Cuyahoga Falls	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X
Dover	...	...	...	X	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
East Orwell	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...
Elyria	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	X	...	...	...	X	...	...	...	...	...	...	...
Fostoria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gambrinus	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...
Lorain	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	X	...	...	X	...	...	...	X	...	...
Mansfield	...	...	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maple Heights	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Marion	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Martins Ferry	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Massillon	X	X	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
McDonald	X	...	X	X	...	...	...	X	...	...	...	...	X	X	...	X	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...
Middletown	...	...	...	X	X	X	X	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Niles	...	...	...	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Piqua	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...
Portsmouth	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	X	X	X	X	X	X	X	...	...	...	...	X	X	...	...	X	...	X	X
Shelby	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Steubenville	...	...	...	...	...	X	...	...	...	...	X	...	X	...	...	...	...	...	...	...	...	...	X	...	...	X	...	...	...	...	...	...	...	...
Toledo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...
Warren	X	X	...	X	X	...	...	X	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wooster	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...
Yorkville	...	...	...	...	...	...	...	...	...	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Youngstown	X	X	X	...	...	...	...	X	X	...	...	...	X	X	...	...	...	...	...	...	...	...	X	X	X	...	X	...	...	...	...	X	...	...
Zanesville	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
OKLA.--Sand Springs	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
OREG.--Portland	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PA.--Aliquippa	X	X	...	...	...	...	...	...	...	X	X	X	...	X	...	X	X	X	X	X	X	...	X	X	X	X	...	X	...	...	X	X	...	...
Allenport	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...
Ambridge	X	X	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	X	...	...	...	...	...	X
Apollo	...	...	...	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Beaver Falls	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	X	...	...	...	...	...	...
Berwick	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X
Bethlehem	X	X	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brackenridge	X	...	...	X	X	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	X	...	X	...	...	X	...	...	...	...	...	...
Braddock	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bridgeport	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...
Bridgeville	X	X	...	X	...	...	...	X	X	...	...	...	X	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	X	...	X	X	...	...
Butler	...	...	...	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...
Carnegie	...	X	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chester	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...
Clairton	X	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coatesville	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Conshohocken	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Danville	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...
Donora	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	X	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...
Dravosburg	...	...	...	X	X	...	...	...	...	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Duquesne	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...
Ellwood City	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	X	...	...	...	...	...	...
Erie	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Etna	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...
Franklin	X	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glassport	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Harrisburg	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ivy Rock	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Johnstown	X	...	X	...	...	...	...	...	...	...	...	...	X	X	...	X	X	X	X	X	X	X	...	...	...	...	...	...	X	...	X	X	...	X
Latrobe	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lebanon	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...
McKeesport	...	...	...	X	...	X	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	X	X	X	...	...	X	...	...	...	...	...	...
McKees Rocks	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...
Midland	X	X	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Milton	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X
Monaca	...	X	...	X	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...
Monessen	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	X	X	X	X	X	X	...	X	...	...	...	...	...	...	...	...	...	...	...
Munhall	...	...	...	...	...	...	...	...	...	...	...	...	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
New Castle	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
New Kensington	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oil City	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	...	...	...
Philadelphia	X	...	...	X	...	...	...	...	X	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...
Phoenixville	X	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pittsburgh	X	X	X	X	X	X	...	...	X	...	...	...	X	...	...	...	X	...	...	...	...	...	X	X	...	...	...	...	...	X	...	X	...	...
Prospect Park	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rankin	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	X	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...
Reading	...	X	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...
Sharon	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...
South Avis	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spring City	...	X	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Steelton	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	X	...	...	...
Vandergrift	...	...	...	X	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Washington	...	...	...	X	X	...	...	...	X	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X
West Leechburg	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wheatland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	X
Williamsport	X	...	X	...	...	...	...	...	...	...	...	...	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	X	...	X	X	...	...	X
R.I.--Pawtucket	...	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phillipsdale	...	...	...	...	...	...	...	X	...	...	...	...	X	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TENN.--Knoxville	X	...	X	...	...	...	...	X	...	...	...	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TEXAS--Fort Worth	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Houston	X	...	X	X	...	...	...	...	...	...	...	...	X	X	...	X	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...
UTAH--Geneva	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
VA.--Richmond	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	X	...	...
WASH.--Seattle	X	...	X	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	X	X	X
W.VA.--Beech Bottom	...	...	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benwood	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	...	...	...	...	...	...	...	...	...
Follansbee	...	...	...	X	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Huntington	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	X	X	...	...	...
Parkersburg	...	...	...	X	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Weirton	X	...	...	X	X	X	X	X	X	X	X	X	...	X	...	...	...	...	...	X	...	...	...	...	...	...	...	X	X	X	X	...	...	...
Wheeling	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
WIS.--Cedarburg	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	...	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Green Bay	...	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kenosha	X	...	...	...	...	...	...	X	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Milwaukee	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	X	X	...	...	...	...	...	...	...

(Based on American Iron & Steel Institute's Directory of Steelworks and supplementary data compiled by STEEL.)

form to the law. They regret the confusion and hardship that will be caused many steel consumers.

Bethlehem, second largest producer, in announcing it was establishing mill prices at all points of production (p.155), said the change was to conform to the law and was not "for the purpose of increasing or decreasing prices . . . Some customers will pay more because of the payment of freight and some less due to the establishment of new mill bases."

Washington Reaction Varied

WASHINGTON reaction to the move by U. S. Steel and others to change to f.o.b. pricing system was varied.

Sen. Robert A. Taft said the next Congress may consider a law which would legalize the basing point price system for industry.

On the other hand, Sen. Joseph C. O'Mahoney (Dem., Wyo.) described the U. S. Steel action as a "characteristic monopolistic move" designed "to seek an opportunity to raise steel prices . . . and attribute the increased cost to the decision of the Supreme Court and the Federal Trade Commission." The senator inferred he suspected a plot on the part of the Corporation to force congressional action and intimated he would bear this in mind when the Senate's Capehart subcommittee, of which he is a member, goes into action. The group has as its purpose the investigation of the effects of the Supreme Court basing point decisions.

Fear Market Restriction

SERIOUS disruption of their sales, particularly when competitive conditions return, is seen by makers of bolts, nuts, screws and rivets if they have to adopt an f.o.b. plant pricing system.

Although some producers of fasteners have been on an f.o.b. plant basis those who are using a multiple basing point pricing system are studying the move of some industries toward f.o.b. mill pricing and waiting to see how many groups take such action. One company which now sells in all of the 48 states says an f.o.b. plant pricing system under which buyers would pay freight costs would restrict its sales to a small proportion of the northeastern states. Another company reports its sales territory would shrink to a small area within Ohio.

The fastener industry's discount method of pricing would not have to be altered, for discounts, it was pointed out, are not illegal as long as no discrimination is shown in quoting them.

Not only is the fastener industry concerned over pricing on sales but many of the producers, even those situated in steel mill towns, are disturbed over the higher costs they will face in getting steel.

Will Industry Move?

WILL Mohammed move to the mountain or will the mountain move to Mohammed?

That's the question today in steel producing centers as result of abandonment of basing point pricing. Will the steel industry move to newer markets, or will fabricators distant from steel supply move to steel producing points?

It presents a neat problem. However, alarmed chambers of commerce are stepping up their drives to attract fabricating industries to the steel producing centers. Pittsburgh, where surplus steel capacity is threatened, is in the forefront of the movement. Two large fabricating firms are reported investigating the feasibility of locating plants in the Pittsburgh area, and an increasing number of inquiries regarding plant sites in the district are reported as having been received since the pricing change.

Warehouses Severely Affected

WAREHOUSE pricing will be severely affected over coming weeks. For the moment, the industry generally is standing pat, awaiting clarification. Some important revisions in policy may be instituted industry-wide before Sept. 1. The warehouse subsidiary of U.S. Steel is understood to be putting new policies into effect now.

Warehouse pricing problem in many respects is even more complicated than that posed the mills. Impact of any revision in warehouse pricing will be felt by hundreds of thousands of small steel buyers, whereas direct mill buyers are counted in the thousands. Actually, the warehouse problem is 2-pronged, involving not only adjustments from standpoint of a steel buyer, but also as a seller.

Warehouses which obtain their supplies from various producing sources now will have to pay varying delivered prices, depending upon source from which the steel is received. In pricing to their customers it is expected the distributors will average out steel costs, and add handling and shipping costs to point of delivery. Since such costs vary between the warehouses, this could well result in a multiplicity of prices in any given area.

Implement Makers Study Change

FARM EQUIPMENT is one of the industries which may modify its pricing system similar to the action taken by the cement and steel industries. All farm machinery may be placed on a straight f.o.b. factory basis.

With a few exceptions the industry already is on the latter basis now. One of the exceptions is International Harvester Co., Chicago, which has an alternative Chicago basing point price for farm tractors and implements. The farmer now pays the freight only from Chicago if he is nearer to Chicago than to any plant producing the machine he buys.

According to company spokesmen no decision has been reached concerning elimination of the alternative Chicago basing point price. In light of the FTC and court rulings on basing point practice in the cement industry Harvester has been studying the situation for some time. No decision has as yet been reached.

Other major products of the company already are sold on an f.o.b. factory system.

Harvester's steelmaking subsidiary, Wisconsin Steel Co., adopted f.o.b. mill pricing for its products May 15 and was the first mill in this district to take such action. It should be pointed out, however, that the move was made purely for economic reasons and was without relationship to government objection to basing point pricing.

Electrical Industry Uncertain

EXTENT to which the electrical goods manufacturing industry will be affected by the court ruling on basing point and zone pricing systems is uncertain.

From the sales angle, the ruling would appear to threaten some changes in the pricing of electrical goods. Many such products are sold on a uniform delivered price basis which may be outlawed under the Supreme Court's decision. Should this be the case a manufacturer in Pittsburgh would find it difficult competing pricewise for business at a point more advantageously positioned freightwise to another manufacturer of identical or comparable products. The result, it would seem, would be area monopolies much as is threatened in the steel industry.

To date no change in pricing policies has been effected by the electrical goods manufacturers. However, the situation is under study.

Captive Mines Reopen

Conditional union shop clause granted; legality to be determined by NLRB and courts

AGREEMENT between captive coal mine operators and the United Mine Workers, ending the 8-day strike in steel company-owned pits last week, apparently has cleared the way for uninterrupted steel production for many months ahead.

The agreement grants the miners the same wage increase—$1 a day—and the same increased contribution to the miners' welfare fund—to 20 cents a ton—as were granted in the commercial mine operator's contract. The new agreement extends to June 30, 1949.

The dispute over inclusion of a union shop clause was solved by including the clause with a stipulation that its legality should be determined by the National Labor Relations Board and the courts. Should it be ruled illegal, the union shop clause will be withdrawn.

Signing of the contract was followed quickly by return of the miners to the captive mines and the resumption of normal production. The 8-day strike is estimated to have cost the captive mines the loss of 2 million tons of coal and some loss of iron and steel production, particularly in the Pittsburgh and Youngstown districts.

The strike rose from the refusal of the captive mine operators to include in the contract a union shop clause, which they held illegal. The Taft-Hartley Act forbids a union shop unless it has been voted by employees in a NLRB election. An election among the miners was impossible because the UMW leaders had refused, as a matter of principle, to sign the non-communist affidavits required by the T-H law of unions seeking protection under the act. So the NLRB could not hold an election to legalize the union-shop clause that has been in coal contracts since Pearl Harbor.

The steel companies took the position that they would not thwart the Taft-Hartley Act.

Several months ago the steel industry served notice on the United Steelworkers of America-CIO, **which also has refused to sign non-communist affidavits as a matter of principle, that the industry would not recognize non-complying unions in future bargaining negotiations.** Barring amendment of the T-H law before next spring, this meant that either the United Steelworkers would be forced to comply or that the steel industry would have to retreat from its position before the 1949 wage negotiations could be held.

Benefit for Steelworkers? — Now the steel companies have conditionally recognized a non-complying union. Will they be able to hold their position of refusing to recognize the non-complying United Steelworkers? Will the steelworkers be encouraged by the partial victory of John L. Lewis to press for a union shop in the steel industry?

The answer to these questions may hinge on final determination of the legality of the captive mine contract.

JOHN L. LEWIS, LEFT, AND HARRY M. MOSES, OWNERS' AGENT, AGREE ON COMPROMISE

REPUDIATED?

IF the plank in the Democratic platform calling for repeal of the Taft-Hartley Act has been fashioned to make room for labor, where stand the 126 senators and representatives—majority of the Democratic contingent in Congress—who voted with Republicans to override President Truman's veto of the bill?

When the final draft of the proposed legislation, in the form of a conference committee report, was presented to Congress early in June, 1947, 120 Democratic senators and representatives voted for and 81 against it. On the issue of sustaining or overriding the president's veto, 126 out of 219 voted against the chief executive.

Labor Productivity Gains

PHYSICAL output per man-hour at present exceeds that of a year ago and also that of 1939-1941. Two-thirds of the companies canvassed by the National Industrial Conference Board, New York, say productivity is higher than in 1947 while only 10 per cent note a decline. Increases are most frequently reported by industrial machinery, machine tool, office equipment, automotive and steel companies.

Three out of five companies say productivity now is higher than in the prewar years.

Most frequently mentioned causes for improved output include new and improved equipment and tools. Also noted are improved material flow, decreased labor turnover, better production methods and plant layouts, more efficient material handling and adoption of incentive plans.

Steel Wage Rate Rises in May

HOURLY earnings of wage workers in the iron and steel industry rose to $1.577 in May to top April's hourly average pay by 2.6 cents and the 1948 five-month average by 1.7 cents. Employment in the industry totaled 627,600 in May, second only in postwar records to the March peak of 628,800 employees. Of the May

figure, 533,700 persons were wage earners. Their average work week in the latest month was 38 hours.

As computed by the American Iron & Steel Institute, the total payroll of the industry in the first five months of the year was $874,576,000, an increase of 10.5 per cent over the amount in the corresponding months of 1947. Eighty per cent of this increase, the institute says, went to employees receiving hourly, tonnage or piecework wages.

Strikes Slow Auto Output

CONTINUING strikes at Timken-Detroit Axle Co., Detroit, and Campbell, Wyant & Cannon Foundry Co., Muskegon, Mich., the latter now a month old, plus a new walkout at Monroe Auto Equipment Co., Monroe, Mich., have interrupted shipments of truck axles, cylinder blocks, camshafts, shock absorbers and sway bars, interfering with production schedules on Ford trucks and tractors, Lincoln, Chrysler, De Soto and Hudson passenger cars. The foundry tieup is particularly critical as inventories of cylinder blocks and crankshafts at customer's plants are becoming dangerously low. Wages appear the principal issues in the disputes.

New Trend in Industry Schools?

NEW emphasis and trend in industrial and business education is possibly indicated by the number of guest observers sitting in on the machine tool sales refresher course being conducted at Cornell University, Ithaca, N. Y., July 12-23.

Representatives from other industrial associations and educational institutions are studying aspects and implications of the school which has been organized through the co-operation of National Machine Tool Builders' Association, American Machine Tool Distributors' Association and Cornell's Sibley College of Mechanical Engineering.

Emphasis in instruction of the school's 60 students is placed on practical experience rather than on abstract theories. Headed by Harry J. Loberg, professor of industrial engineering, the faculty consists of six Cornell professors, including Dexter S. Kimball, dean emeritus of engineering; 27 from machine tool building and marketing circles, including A. G. Bryant and R. L. Giebel, presidents of the builders and distributors associations; and nine from machine tool using companies, including W. J. Peets of Singer Mfg. Co., W. A. Sredenschek of General Electric, H. G. Warner of General Motors, R. T. Hurley of Ford and J. R. Weaver of Westinghouse.

Prefab Allocation Hit

Sheet users caustic in criticism. Charge discrimination against private industry

THE 59,000-ton sheet allocation request for prefabricated housing, which the Steel Products Advisory Committee originally turned down on ground that it would be wasteful use of steel and on which it grudgingly reversed itself under pressure from various congressmen and administration officials, received caustic opposition at public hearing Wednesday.

C. J. Rodman of Alliance Ware, Alliance, O., who spoke for Formed Metal Plumbing Division of Porcelain Enamel Institute, said the requested 59,000 tons of sheets would build only 6000 all-steel prefabricated homes whereas it would suffice for 39,000 conventional homes. But the worst feature is the possibility that this allocation might come out of the present utterly insufficient supply of enameling sheets which aggregates some 450,000 tons annually and is rationed among some 400 consumers.

Rodman also objected on ground most of this allocation would go to one concern, the Lustron Corp., which is operating on a RFC loan of $15.5 million, and which has applied to RFC for an additional $10 million.

Protecting Investment—"This proposal apparently is an instance of government allocation of steel in an effort to protect a government investment and it establishes a most dangerous and unsavory precedent," said Rodman.

W. S. Hammersley of St. Joseph, Mich., who represented American Washer & Ironer Manufacturers Association, said that wasteful use of sheets in prefabricated homes means not only that his industry would get less sheets for its own production but would lose a substantial part of its potential market in that total house production would be reduced by some 33,000 units, which would be produced if steel were to continue to go into housing of conventional design.

Plant Idle for Lack of Steel—R. C. Ingersoll, vice president, Borg-Warner Corp., objected to the program on ground diversion of steel to Lustron, government-financed corporation, was unfair to private industry and he cited a $2.5 million Borg-Warner bathtub and sink plant which has not been able to operate for lack of steel, despite shortage of these products for housing. Ingersoll predicted that Lustron prefabricated houses would cost more, not less, than conventional housing. Ingersoll thought real reason for reversal of steel committee's attitude was fear that government would put steel industry in bad public light on charges that it refused to co-operate in making low cost prefabricated houses available to veterans.

George Burley, Lustron Corp., said

HEADED FOR SCRAP: Hard-pressed scrap consumers will welcome what additional supplies will come from this Chicago landmark to be cut down soon. Abandoned last April, the 54-year-old Wacker Drive elevated stub will make way for a new superhighway. NEA photo

his company would want a small tonnage of enameling sheets for its bathroom fittings output, but it would want only ordinary sheets for use in its production of prefabricated houses.

Further action on the program now is up to Secretary of Commerce Charles Sawyer.

Steel Outlook Brightens

Industry, unhampered by labor turmoil, may produce 88 million ingot tons

ANXIETY which steel consumers are bound to feel over higher steel prices and departure of the producing industry from its basing point method of pricing may be soothed somewhat by knowledge that the way is clear for improvement in steel supply for the second half of this year.

With the coal miners back at work, the steelworkers well satisfied with raises given them without a strike or threat of strike, and the railroad wage issue at least temporarily resolved, steel producers can lump their production worries in one group: Raw materials.

88 Million-Ton Year — While none of the current shortages shows signs of easing materially over the rest of the year, and in fact at least one—that of scrap—may become tighter depending upon the accuracy of dire predictions for the coming fall and winter seasons, there should be enough of these products available, with labor skies clear, to enable the steel industry to produce in the neighborhood of 88 million net tons of ingots this year.

Had it not been for the turmoil-studded second quarter this estimate would appear to be on the low side. The setback which the March-April coal strike gave to the industry's 1948 output amounts, however, to about 2 million tons and it will require operations averaging between 94.5 and 95 per cent of capacity over the remainder of 1948 to offset this loss and turn in an 88-million-ton year.

Production Eclipses Last Year's — For the first half of 1948, ingot production, as reported by the American Iron & Steel Institute, totaled 43,060,403 net tons. This represented a gain of 1.7 per cent, or nearly 722,000 tons, over output in the corresponding 1947 period.

Output in second quarter of this year, when the coal shortage arising out of the spring strike was most acute, slid off to 21,039,288 tons, from 22,021,115 in the previous quarter.

Steel Ingot Production Statistics

	Estimated Production—All Companies									
	—Open Hearth—		—Bessemer—		—Electric—		—Total—		Calculated	Number
	Net tons	Per cent of capac.	Net tons	Per cent of capac.	Net tons	Per cent of capac.	Net tons	Per cent of capac.	weekly production Net tons	of weeks in mo.
1947										
1st 6 mos. ..	38,328,096	95.4	2,177,701	85.2	1,832,760	72.8	42,338,557	93.5	1,636,589	25.87
2nd 6 mos. ..	38,545,697	94.4	2,054,842	79.1	1,954,975	76.4	42,555,514	92.6	1,619,928	26.27
Total ...	76,873,793	94.9	4,232,543	82.1	3,787,735	74.6	84,894,071	93.0	1,628,195	52.14
1948										
Jan.	6,768,497	95.5	343,169	77.5	361,110	79.0	7,472,776	93.6	1,686,857	4.43
Feb.	6,245,338	94.3	340,596	82.3	354,270	82.9	6,940,204	93.0	1,676,378	4.14
Mar. ...	6,841,578	96.6	363,235	82.0	403,322	88.2	7,608,135	95.3	1,717,412	4.43
1st qtr. .	19,855,413	95.5	1,047,000	80.6	1,118,702	83.4	22,021,115	94.0	1,693,932	13.00
Apr.	5,640,168	82.2	185,089	43.2	392,900	88.7	6,218,157	80.4	1,449,454	4.29
*May ...	6,799,289	96.0	355,562	80.3	404,821	88.5	7,559,672	94.7	1,706,472	4.43
†June ...	6,489,764	94.6	356,810	83.2	409,931	92.6	7,256,505	93.8	1,691,493	4.29
†2nd qtr..	18,933,210	91.0	897,461	69.0	1,208,617	90.0	21,039,288	89.7	1,617,163	13.01
†1st 6 mos. ..	38,788,623	93.2	1,944,461	74.8	2,327,319	86.7	43,060,403	91.8	1,655,533	26.01

* Revised. † Preliminary figures subject to revision.

For 1947, percentages of capacity operated are calculated on weekly capacities of 1,553,721 net tons open hearth, 98,849 net tons bessemer and 97,358 net tons electric ingots and steel for castings, total 1,749,928 net tons; based on annual capacities as of Jan. 1, 1947, as follows: Open hearth 81,010,990 net tons, bessemer 5,154,000 net tons, electric 5,076,240 net tons, total 91,241,230 net tons.

For 1948, percentages of capacity operated are calculated on weekly capacities of 1,599,286 net tons open hearth, 99,962 net tons bessemer and 103,228 net tons electric ingots and steel for castings, total 1,802,476 net tons; based on annual capacities as of Jan. 1, 1948, as follows: Open hearth 83,610,690 net tons, bessemer 5,226,000 net tons, electric 5,396,770 net tons, total 94,233,460 net tons.

The second quarter's operating rate was down to 89.7 per cent, against 94 per cent in first quarter, and brought the half-year rate to 91.8 per cent, compared with 93.5 per cent a year earlier.

Record Tonnage To Auto Makers

IF THE AUTOMOTIVE industry can do as well in steel procurement the rest of this year as it did at the beginning of 1948 it should have a noteworthy car production record.

Figures just released by the American Iron & Steel Institute, New York, show that in January the auto industry, No. 1 consumer of steel, received a larger steel tonnage from mills than in any month of 1947. Its tonnage totaled 835,374 net tons, constituting 15.4 per cent of January's total mill shipments of 5,410,438 tons. Only 1947 month in which the auto industry's receipts exceeded the 800,000-ton mark was December, and even then the total did not come up to the January, 1948, figure. However, 1947's automobile production is exceeded only by that of 1929 and 1941. In January, 1947, the auto industry received only 698,742 tons, or 13.8 per cent of total mill shipments.

Consumer placing second in steel receipts in January is construction and maintenance, taking in 563,039 tons, compared with 458,789 tons in the corresponding month of 1947. In third place in January, 1948, is rail transportation whose receipts of 406,330 tons are, however, below the 428,911 tons it received in the like month of 1947. Likewise, January's fourth place consumer — container manufacturing industry — received less tonnage that month than in the corresponding 1947 month, its receipts in January, 1948, aggregating 377,012 tons, compared with 382,093.

Jobbers, dealers and distributors received 924,650 tons in January, 1948, or 17.1 per cent of all mill shipments that month. In January, 1947, they were allotted 851,271 tons, or 16.8 per cent.

Of mill distribution of 5,410,438 tons of steel in January, 1948, carbon grades accounted for 5,010,539 tons, alloy (other than stainless) 376,958 tons, and stainless 22,941 tons. In the corresponding month of last year, total mill shipments of 5,061,333 tons were comprised of 4,687,633 tons of carbon grades, 345,992 tons of alloy (other than stainless), and 27,708 tons of stainless.

Gain in Shipments Reported

SHIPMENTS of finished steel products, responding to the improvement in ingot production after the coal strike was settled, mounted to 5,321,375 net tons in May, up 225,000 tons from the April volume. For the five-month period shipments aggregated 26,779,909 net tons, more than 3 per cent higher than shipments in the comparable 1947 period.

Doubles Stainless Capacity

REPUBLIC Steel Corp.'s stainless steel sheet and strip rolling capacity at Massillon, O., will be doubled soon.

Additional rolling equipment to increase capacity approximately 1800 tons a month is being installed there and completion of the project will be marked by an open house Aug. 11.

Windows of Washington

By E. C. KREUTZBERG *Washington Editor, STEEL*

Next Congress and administration, regardless of party, expected to consider industry pricing, minimum wage policy, tax reduction, employment, housing and other matters

MANY federal departments and agencies are feeling these days like needy retainers whose only benefactor may die by next January 20. Although the Republican 80th Congress was not too unsympathetic, will a Republican 81st Congress, more sure of itself in the new menage, unite with a possible Republican administration to sweep the whole house clean? Since a "yes" to this question is a possibility, the bureaus in Washington are estimating where they will stand, based on what they think the next administration and Congress, regardless of party preponderance, will have to do.

Antitrust Law Revision — Almost certain to be considered is revision of the antitrust laws to give industry partial release from the straitjacket forged by Supreme Court decisions in suits on pricing. The minmum wage policy is another subject to come up for consideration, as will further tax reduction and a sequel to the Employment Act of 1946. Action against depression and unemployment seems certain. The wealth of information compiled by the joint Congressional Committee on the Economic Report, as a result of studies in 1947 and to date in 1948, will certainly be used in considering future overall economic legislation. Less certain will be any further move regarding voluntary allocations, other than extending the present provisions. President Truman's assurances that the voluntary agreements will be relied on, and the mandatory powers conferred by the Ploeser amendment in the Selective Service Act will be held in abeyance, have quieted much of the alarm over the fate of the voluntary procedure.

Labor Laws Unlikely—What Congress is likely not to do has also come up for consideration. Chances for further major labor legislation are seen as rather dim at present because of the continuing strong protests of labor leaders against the Taft-Hartley Act. Only an extreme emergency would prompt congressional and administrative action in this arena.

Other matters almost certain to be acted upon by the next administration and Congress are: Report of the Hoover commission on reorganization of the administrative branch; housing; establishment of a national policy of subsidizing minerals production and development; authorization of the construction of commercial-size plants to produce liquid fuels from coal; authorization for the perennial St. Lawrence seaway and power project; and legislation to increase the shipbuilding subsidy.

BRITAIN SIGNS: One hour after Parliament approved the American aid measure, British Foreign Minister Ernest Bevin, left, and American Ambassador Lewis Douglas met to sign the bilateral agreement. NEA photo

Shipbuilding Subsidies Pending

IN THE case of shipbuilding subsidies, the early adjournment of Congress temporarily shelved a bill which would have authorized government money for perhaps 70 to 75 per cent of the cost of a ship. This bill had been passed by the House but was not yet ready for Senate action.

It is certain to come up again before the 81st Congress, but in the meantime the administration feels its shipbuilding program—deemed essential for national defense—is lashed to the mast when speed is essential. Government, consequently, is seeking to cut the knots, and it has at least two good knives with which to accomplish the task. It feels it can assure the industry that subsidies will be passed, but it also has the concrete sum of $178 million for subsidy, allotted by the recent Congress as a temporary inducement for ship construction as part of the defense program. Catch to this is that Sept. 30, 1948, is the deadline for use of these funds, and consensus is that not too much can be done in the short time remaining.

This sum is the first bite in a three-year program estimated to require $400 million of government money. Project calls for: 18 high-speed passenger and combination passenger-cargo vessels for purchase by eight American shipowning companies; 20 high-speed tankers to be constructed by private owners with government participation limited to the cost of the national defense feature of increased speed; and two special vessels to be built with government mortgage-credit assistance, to haul passengers, trucks and trailers in the Pacific coastal trade.

Attractive as some of these terms are, they are not as attractive as the more permanent subsidy bill would be. Consequently, shipbuilders are moving cautiously. Some hope, however, is held for an agreement to be reached prior to Sept. 30 for at least

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1. Steel castings or welded steel construction throughout.
2. Roll drive and roll assemblies use anti-friction bearings.
3. All rolls with their assemblies are easily removed thru the outboard housing without further dismantling.
4. All adjustments are readily accessible to the operator.
5. Coil side guides and bending roll adjustments are motor-operated.
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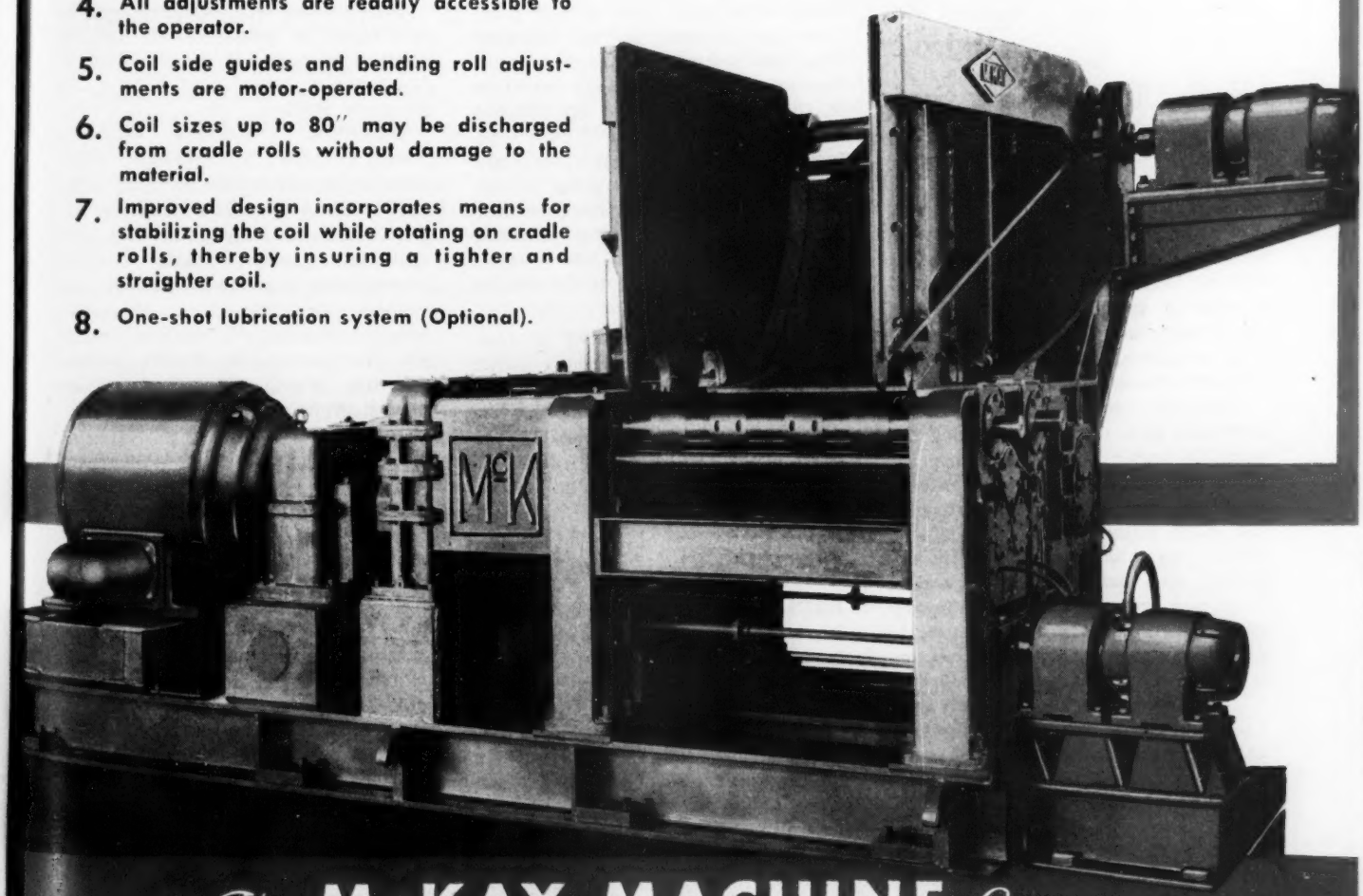
7. Improved design incorporates means for stabilizing the coil while rotating on cradle rolls, thereby insuring a tighter and straighter coil.
8. One-shot lubrication system (Optional).

Designed and built with capacity to coil hot or cold strip in various thicknesses and in widths from 24" to 96".

Rugged construction for steel mill service insures continuous performance with minimum maintenance.

Compact design reduces floor space requirements.



The **McKAY MACHINE** *Company*

ENGINEERS AND MANUFACTURERS OF SHEET, TIN, AND STRIP MILL EQUIPMENT

YOUNGSTOWN, OHIO

ASSOCIATED COMPANY The WEAN ENGINEERING CO., Inc. • WARREN, OHIO

the construction of seven vessels on which bids already have been received. These include two big passenger liners for the American Export Lines, to cost $23 million each, and five combination vessels for the American President Lines, to cost $10 million each.

Government interest in the Great Lakes fleets, incidentally, is still only in the conversational stage. While no subsidy may be allowed on construction of ore carriers, they are eligible for mortgage aid. In addition, the Maritime Commission is permitted by the Merchant Marine Act of 1946 to allow trade-in value of old ore boats. Just what this trade-in value should be is still undecided. Operators want to trade in their old vessels at around $140 a ton, but the commission is holding out for an exchange price based on the scrap value, perhaps $50,000 per ore ship.

The American ocean-going merchant marine now comprises about 1300 dry cargo vessels and 700 tankers. Of the dry cargo ships, about 750 are owned by the commission and operated under charter by private companies. The only vessels operated at present by the government are 10 converted troopships used as emergency passenger ships in the Atlantic.

OIT Modifies Steel Exporting

ALL steel mill products subject to export control, with the exception of material not generally salable in the domestic market, have been added to the list of commodities which may be authorized for shipment under one blanket license to two or more consignees in any one foreign country, the Department of Commerce has announced through its Office of International Trade.

Materials excepted from the new provision and, consequently, not exportable under blanket licenses, include war surplus iron and steel commodities, and products rejected at the steel mills because of defects. Under the new procedure, any exporter who holds accepted orders from two or more purchasers in any one foreign country may choose to file only one application for an export license. In applying for such a license, however, he must comply with the same regulations which govern shipments of iron and steel commodities under individual validated licenses.

In another move to modify and simplify its procedure, OIT has set up 72 different groups of commodities which are not on the Positive List, and consequently, not subject to quarterly allocation on a quantitative basis. Any combination of the commodities in any one of these groups may be entered on a single license application for export to a single consignee in any one Group R country. Current Export Bulletin No. 464 describes the groups, which include hand tools, household appliances, clay products, rubber goods and other commodities.

World Tariff Meeting Slated

STATE Department trade personnel are preparing for the meeting at Geneva, Switzerland, starting Aug. 15, of the signators of last year's General Agreement on Tariffs and Trade. In addition to the 22 signators which already have ratified the pact (Chile is the only signatory power which has not yet taken such action), some 35 additional powers that attended the International Trade Organization meeting at Havana are expected to be in attendance, and many of them are expected to put their signatures on the Geneva agreement. In addition, the matter of amending the Geneva pact to include provisions of the Havana charter will be considered.

Hopes are entertained by the State Department that most of the countries participating in the Marshall Plan who are not yet signators of the Geneva pact will become members of the group. Included are Iceland, Sweden, Finland, Italy, Turkey, Ireland, Denmark, Portugal, Greece and Switzerland. All, in signing up under the Marshall Plan, have committed themselves to a policy of reducing barriers to trade—which, after all, is the main object of the Geneva pact.

Subjects to be discussed at Geneva include individual country quotas for certain imports, the extent to which internal tariffs in the different countries present obstacles to imports, etc. Actual import tariffs are not to be taken up again on this occasion.

ECA Tackles Foreign Investments

REGULATIONS by which American investors may apply for guarantees covering the transfer into U. S. dollars of proceeds from new investments in countries participating in the European Recovery Program have been announced by Paul G. Hoffman, administrator. Generally, the procedure is for investors to apply for a guarantee through ECA which will provide dollars in exchange for the foreign currency received by the investor at the rate of exchange recognized by the U. S. The foreign currency becomes the property of the U. S. Complete details will be published in the Federal Register.

Creditors To File on Alien Property

CREDITORS of businesses and individuals whose property was seized as alien property between Dec. 18, 1941, and Dec. 31, 1946, and for whom earlier bar dates had not been previously issued and published in the Federal Register, have until Aug. 8, 1948, to file their claims.

Claims may be filed by United States or Philippine citizens or residents of the U. S. since Pearl Harbor and by corporations organized under federal, state, territorial or Philippine law. Claims should be sent to the Office of Alien Property, Department of Justice.

Military Studies National Health

ASSUMING that the shortage of manpower in the event of another war would be one of our major difficulties, the National Military Establishment is preparing its own public health program. Such a program would be extremely important in reducing absenteeism from industrial plants because of illness.

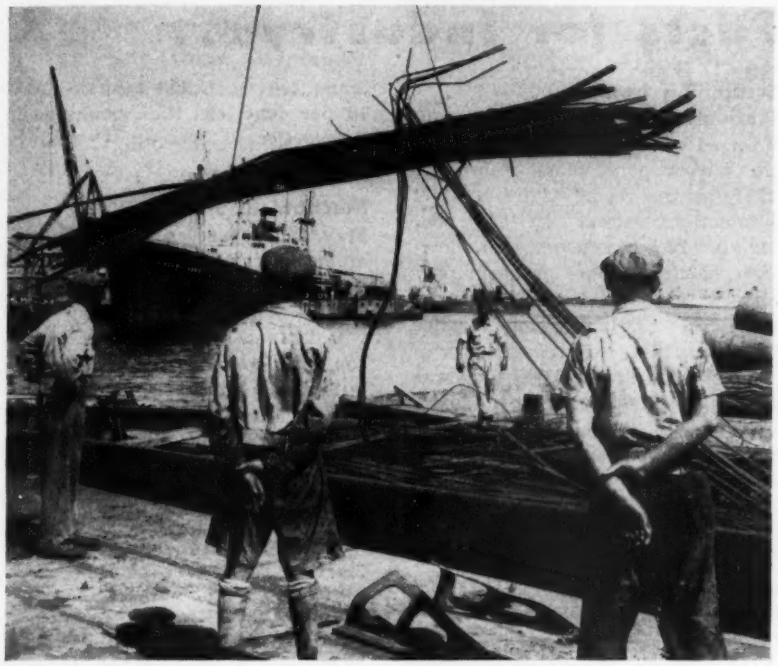
Doctors, dentists and engineers, all specialists in public health and industrial hygiene, spent two days in Washington July 7 and 8 to get a program started.

Industrial physicians attending were: Dr. Carl M. Peterson, secretary of the American Medical Association Council on Industrial Health; Dr. C. B. Selby, medical director, General Motors Corp.; William P. Yant, representing a group of industrial engineers; Dr. Harold A. Vonachen, medical director, Caterpillar Tractor Co.; Dr. George M. Smith, medical director, Scovill Mfg. Co., and research professor, Yale University.

Census Services Cut

APPROPRIATION cuts for the Census Bureau, Department of Commerce, have necessitated a number of curtailments in its statistical services for the fiscal year beginning July 1, 1948. Some reports on manufacturing production, retail and wholesale trade, foreign trade and state and local government operations will be discontinued, while others will be issued less frequently or will be based on less complete coverage.

Census Bureau appropriations for statistical services during this fiscal year total $5,100,000, compared with $6,095,000 available until June 30, 1948, and $9,210,509 for the year ended June 30, 1947.



ISRAELI STEEL: Steel construction rods are unloaded from a lighter in Haifa harbor by Jewish workers as the new Israeli government accelerates the pace of both war and peace construction work in the Holy Land. NEA photo

French Attack Inflation

Cuts in manufactured goods prices seen as minor move; expanded output is solution

PARIS, FRANCE

SUBSTANTIAL cuts in the prices of manufactured products have been agreed to by the Association of French Manufacturers. The result of government-decreed reduction in semimanufactures of 2 to 10 per cent, these price cuts vary from 3 to 10 per cent and affect almost all products of French manufacture. The reductions, however, are most substantial in articles for personal and household use.

Pressure on the government to lower prices for goods in common use was exerted recently by labor organizations, especially the non-communist Force-Ouvriere and the Christian Workers. Both federations insisted on lower prices if demands for higher wages were to be successfully opposed.

Although the reductions apply only to manufactured goods, it is believed they will indirectly result in lower food prices inasmuch as farm equipment will cost less. If food price reductions are not forthcoming, a number of measures, approved by the government and designed to effect this result, will be placed in operation.

The Full Answer — The latest cuts are regarded as only a minor solution of the price problem in France. Although relative price stability has been noted since February, the chances for permanent stabilization have been slight. There can be no sound and lasting solution to the price problem until national production is great enough to meet national needs. At present the nation is far from achieving this goal, and many subsidies must still be maintained.

The annual report on progress under the Monnet Plan indicates considerable improvement in overall conditions. In coal, for example, expenditures for modernization and equipment in 1947 totaled $220 million, the spending of which has made outlook for improved coal supply decidedly better.

In the steel industry, production reached 94 per cent of the 1947 target. The plan aims not only at bringing production of raw steel up to 12 million tons a year by 1950 by improving and extending existing plants but also at a complete transformation of the industry by the introduction of new machinery and new plants. Orders placed for new plants last year included six new blast furnaces. Two blast furnaces are undergoing reconstruction and ten are under repair. Four open hearths are being built, two of which are to be heated by oil burners. Three existing open hearths are to be converted to oil and one other will be adapted to use of natural gas.

Belgium, Luxemburg

EXPORTS of iron and steel products from Belgium and Luxemburg reached a postwar high in April of 297,000 metric tons. Principal recipients were the Netherlands with 62,270 tons, Switzerland 36,970 tons, Sweden 34,925 tons, Argentina 21,930 tons (a postwar record for that country), Portugal 13,375 tons, Great Britain 12,435 tons, Denmark 10,349 tons, and the Belgian Congo 10,243 tons. The chief products exported were merchant bars, structural steel, plates and sheets. For the first four months of this year, Belgo-Luxemburgian exports totaled 1,018,980 tons, compared with 635,213 tons in the corresponding 1947 period. Exports at present are at an annual rate of 3 million tons, compared with 4,400,000 tons in 1937.

Export demand continues strong, especially for wire products, with much of the demand originating in the Netherlands, Portugal and Switzerland. Currency control makes sales to certain countries, notably France, difficult. Recently quoted export prices are: Merchant bars for Argentina, $150-$157, c.i.f. Buenos Aires; hoops approximately $191, f.o.b. Antwerp; galvanized corrugated sheets $306.80, f.o.b. Antwerp.

The Netherlands

IMPORTS of iron and steel into the Netherlands in January and February included 81,000 tons from Belgium and Luxemburg, 42,000 tons from the United States, including 15,250 tons of concrete reinforcing bars, and 12,500 tons from Great Britain.

Italy

OUTPUT of iron and steel products for first quarter was as follows, with 1947 corresponding figures in parentheses: Pig iron and ferroalloys 76,000 metric tons (46,000), steel ingots and castings 489,000 tons (290,000), and rolled products 354,000 tons (249,000). Serious shortage of scrap is hindering the industry, which claims that if enough raw materials were available production this year would reach 2,050,000 tons of crude steel and 514,000 tons of pig iron.

Germany

COAL production in the Ruhr has followed a downward trend since out-

put in excess of 300,000 metric tons a day was reached in March. This daily average is the minimum required to enable Bizonia to fulfill its obligations to the European Recovery Program. A reduction in iron and steel production is expected as the combined result of the coal situation and large-scale repairs being made to principal power stations.

Output of steel ingots and castings in the bizone was 362,750 metric tons in May, compared with 323,545 tons in April. Pig iron output was 313,530 tons in May and 312,742 in April, and rolled products production dropped from 241,064 tons to 211,934 tons.

Czechoslovakia

STEEL ingot and casting output in Czechoslovakia in the first four months of the year totaled 1,012,193 metric tons, compared with 766,000 tons in the corresponding 1947 period. Pig iron output was 541,086 tons in the period, compared with 454,000 tons in 1947, and total for rolled products was 614,369 tons for four months.

Scandinavia

PROCESS for elimination of phosphorus from iron ore has reportedly been discovered by the Gransesberg mining company. The ore is concentrated and the phosphorus removed by action of concentrated acids.

Great Britain

IN CONSIDERATION of the agreement of the British Iron & Steel Federation to pay part of the subsidy on transportation costs on imported iron ores (STEEL, July 12, p. 69), the government has advanced the prices of pig iron by $.80 a ton for basic iron, $1.20 for hematite iron, and correspondingly for other grades. Semifinished steel prices have been increased $1 a ton.

Recently quoted export prices per gross tons, f.o.b. port of shipment, are: Merchant bars under 3 in., $99.60; bars 3-in. and over, $87.60; structural shapes, $83.60; plates 3/8-in. and over, $86.60; and boiler plates, $90.10.

If the bill providing for nationalization of the iron and steel industry is not pushed into law before May, 1950, it is expected to be a major issue in the elections at that time. As seen now the bill will provide for state ownership of the stock of leading companies, while leaving their identity unchanged. How much of the industry would come under this system has not yet been determined.

Facts for Industry . . .

Scrap, Pig Iron

Consumption of scrap and pig iron dropped to 8,192,000 tons in April, the lowest point since February, 1947, as the result of lower steel production caused by the coal strike. Lower consumption, however, made possible gains in purchased scrap stocks to the highest level (3,013,000 tons) since October, 1944. Purchased scrap consumption at 2,475,000 tons was down 7 per cent from April; home scrap use at 2,183,000 tons was 15 per cent lower, and pig iron consumption dropped 22 per cent to 3,534,000 tons, the lowest since December, 1946. Steel furnaces used 3,334,000 tons of scrap and 2,979,000 tons of pig iron; gray iron foundries consumed 882,000 tons of scrap and 406,000 tons of pig iron. *Bureau of Mines, Interior Dept.*

Steel Forgings

Commercial steel forgings shipments totaled 108,546 short tons in May, a drop of 5 per cent from the 114,314 tons shipped in April. Unfilled orders at 623,620 were down slightly from the previous month. Of total May shipments drop and upset forgings accounted for 75,983 tons, and press and open hammer forgings for 32,563 tons. *Census Bureau, Commerce Dept.*

Steel Castings

Shipments of steel castings during May were 5 per cent under the April total and aggregated 143,337 short tons. Of this total 111,616 tons, or 78 per cent, were for sale to the trade. All of the decrease in shipments was of miscellaneous types. Shipments of railway specialties, which showed a 9 per cent gain over the previous month's volume, totaled 39,275 tons. Shipments of castings for manufacturers' own use totaled 31,721 tons, 10 per cent under the April volume. *Census Bureau, Commerce Dept.*

Malleable Iron Castings

Malleable iron shipments, at 76,079 short tons in May, were 6 per cent below April tonnage. Of the total, 42,261 tons, or 56 per cent, were shipped to outside trades as rough castings; the remaining 33,818 tons were for the producers' own use. New orders booked, less cancellations, for sale to the trade amounted to 34,236 tons in May, 19 per cent less than bookings in April. *Census Bureau, Commerce Dept.*

Mechanical Stokers

May factory sales of mechanical stokers aggregated 6627 units, 36 per cent more than were sold in April. The latest month's total was 22 per cent above the figure for the comparable 1947 month but was less than half the number sold in May, 1946. Of total sales, 5658 were for residential use (other than apartment houses) and 287 were sold for use in small apartment houses and small commercial heating plants. *Census Bureau, Commerce Dept.*

Steel Boilers

Orders were booked in May for 1736 steel boilers of 100 sq ft of heating surface and over. Their heating surface aggregated 1.6 million sq ft. This compared with April bookings of 1340 boilers with heating surface of 1.6 million sq ft. Of the May total, 597 boilers, or 34 per cent, were stationary power boilers of over 15 lb pressure, 1134, or 65 per cent, were steel heating boilers and 5 were marine boilers. The heating surface of the stationary boilers accounted for 63 per cent of the total, and heating boilers for about 35 per cent. *Census Bureau, Commerce Dept.*

Housing-type Trailers

May production of housing-type trailer coaches was 5881 units, compared with 5517 in April. Shipments in the latest month totaled 6011 units, valued at $10.6 million. This was an increase of 5 per cent in number and 4 per cent in value over April shipments. Compared with May last year, shipments were up 4 per cent in number and 14 per cent in value. *Census Bureau, Commerce Dept.*

Crude Petroleum

July consumption and export of domestic crude petroleum is expected to amount to 5,630,000 bbl a day. July, 1947, use had aggregated 5,332,500 bbl a day. Crude runs to stills averaged 5,540,000 bbl daily in April and approximately 5,630,000 bbl a day in May and June, for an increase of 13.7 per cent above production in the corresponding 1947 quarter. *Bureau of Mines, Interior Dept.*

Railroad Fair at Chicago

Two million expected to visit Chicago exposition depicting 100 years of railroad history

THE NATION'S railroads, taking a page from the the public relations guide book of many other industries, are holding an exposition to boost and cement their standing with the public.

Recognizing the fascination which trains hold for most people, the industry expects two million people to visit its Railroad Fair opening in Chicago July 20 and continuing until Sept. 6.

The fair commemorates the one-hundredth anniversary of the first run of a steam railroad locomotive out of the muddy frontier outpost of Chicago, an event which marked the real beginning of the final conquest of the West and the consequent rise of Chicago to a position as the world's rail hub.

Offering a giant outdoor show and 50 acres of exhibits, the fair is designed to tell the part played by railroads in the history and development of the country; to show the dependence of the national economy on railroads; and to point up the great technological advances that have contributed importantly to the safety, speed, comfort and convenience of today's rail transportation.

The fair's central attraction will be a transportation pageant on a 450-foot outdoor stage over which are laid three standard gage railroad tracks. Featured will be 220 professional performers, 800 period costumes and hundreds of antiques tracing the history of transport in this country from the late seventeenth century. Included will be the world's first automobile, 19 famous old-time locomotives and trains dating as far back as 1829, and hundreds of horses and oxen. The hour and a quarter show will be presented at least four times daily.

Dramatized exhibits by 20 railroads and two large train manufacturers will cover much of the remaining area in the railroad fair's mile-long stretch of lakefront grounds.

Truck Body Trade Group Formed

A TRADE association for the quarter-billion dollar truck body building industry has been organized and starts its life with a membership of over 150 commercial truck body manufacturers.

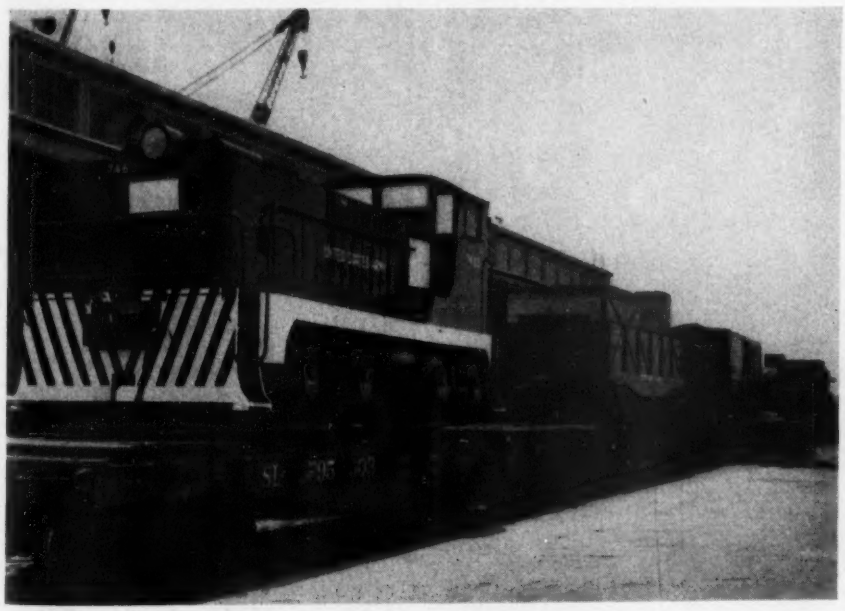
In an organization meeting recently held in Elkhart, Ind., the National Truck Body Manufacturers' Association adopted its constitution and named its officers. To serve for the rest of the year are: President, Frank E. Hartnell, Transportation Specialties, Elkhart; vice president—Western District, R. W. Allen, California Body & Trailer Co., Redwood City, Calif.; vice president—Midwest District, E. E. Miller, DeKalb Commercial Body Corp., DeKalb, Ill.; vice president — Eastern District, Fred S. Glasier, Glasier Body Corp., Newark, N. J.; and secretary-treasurer, R. R. King, American Body & Trailer Inc., Oklahoma City.

Secretary-manager of the association is Shipley D. Burton who will have charge of the group's offices at 1016 Dupont Circle Bldg., Washington.

Metallizing Contractors Meet

AMERICAN Metallizing Contractors Association, which was formed last December in St. Louis as a group of firms in the metallizing contract field, recently held its second meeting at Cleveland.

The following new members were accepted: Metalweld Inc., Philadelphia; Forney's Inc., New Castle, Pa.; Harbin Welding Co., Cincinnati; Akron Sandblast Co., Barberton, O.; Fulton Foundry & Machine Co., Cleveland; Clark & Co., Newport Beach, Calif.; and Atomized Metals, San Francisco. Other firms present, who were founders of the association, were: Alloy Welding & Mfg. Co., Tulsa, Okla.; Metallizing Inc., Chicago; Metal Spraying Corp., Milwaukee; Dix Engineering Co. Inc., Detroit; Tranter Mfg. Co., Pittsburgh; Thornton Co., Cleveland; and John Nooter Boiler Works Co., St. Louis.



One train took a train ride to get to the national Railroad Fair opening in Chicago this week. "All aboard" is the large model Transportation Corps train owned by San Francisco Port of Embarkation. Built in the Port motor vehicle shops at Oakland Army base, the train is 160 feet long, consists of diesel locomotive, box car, gondola, flat car and caboose, each unit complete in detail. Sponsors of the fair requested participation of the unique train, arranged for its movement to and from Chicago at no cost to the government. NEA photo

Meetings . . .

July 21-23, American Society of Civil Engineers: Summer convention, Olympic Hotel, Seattle.

July 26-27, Institute of Scrap Iron & Steel Inc.: Midyear meeting, Ambassador Hotel, Atlantic City, N. J. Institute executive vice president is E. C. Barringer, Dupont Circle Bldg., Washington.

Aug. 10-13, First Western Packaging Exposition and Conference: San Francisco Civic Auditorium, San Francisco.

Aug. 24-27, American Institute of Electrical Engineers: Pacific general meeting, Spokane, Wash. Institute headquarters are at 33 W. 39th St., New York.

Aug. 30-Sept. 3, American Chemical Society: Eastern section of annual meeting, Washington, D. C. Society headquarters are at 60 E. 42nd St., New York.

Sept. 6-10, American Chemical Society: Midwest section of annual meeting, St. Louis. Society headquarters are at 60 E. 42nd St., New York.

Sept. 7-20, Department of State: First inter-American conference on conservation of renewable natural resources, Denver.

Sept. 9-10, American Ceramic Society: Fall meeting, Hotel Conneaut, Conneaut Lake Park, Pa. Society headquarters are at 2525 N. High St., Columbus, O.

Sept. 13-17, American Chemical Society: Western section of annual meeting, Portland, Oreg. Society headquarters are at 60 E. 42nd St., New York.

Sept. 13-17, Instrument Society of America: Third instrument conference and exhibit, Convention Hall, Philadelphia. Society headquarters are at 1117 Wolfendale St., Pittsburgh.

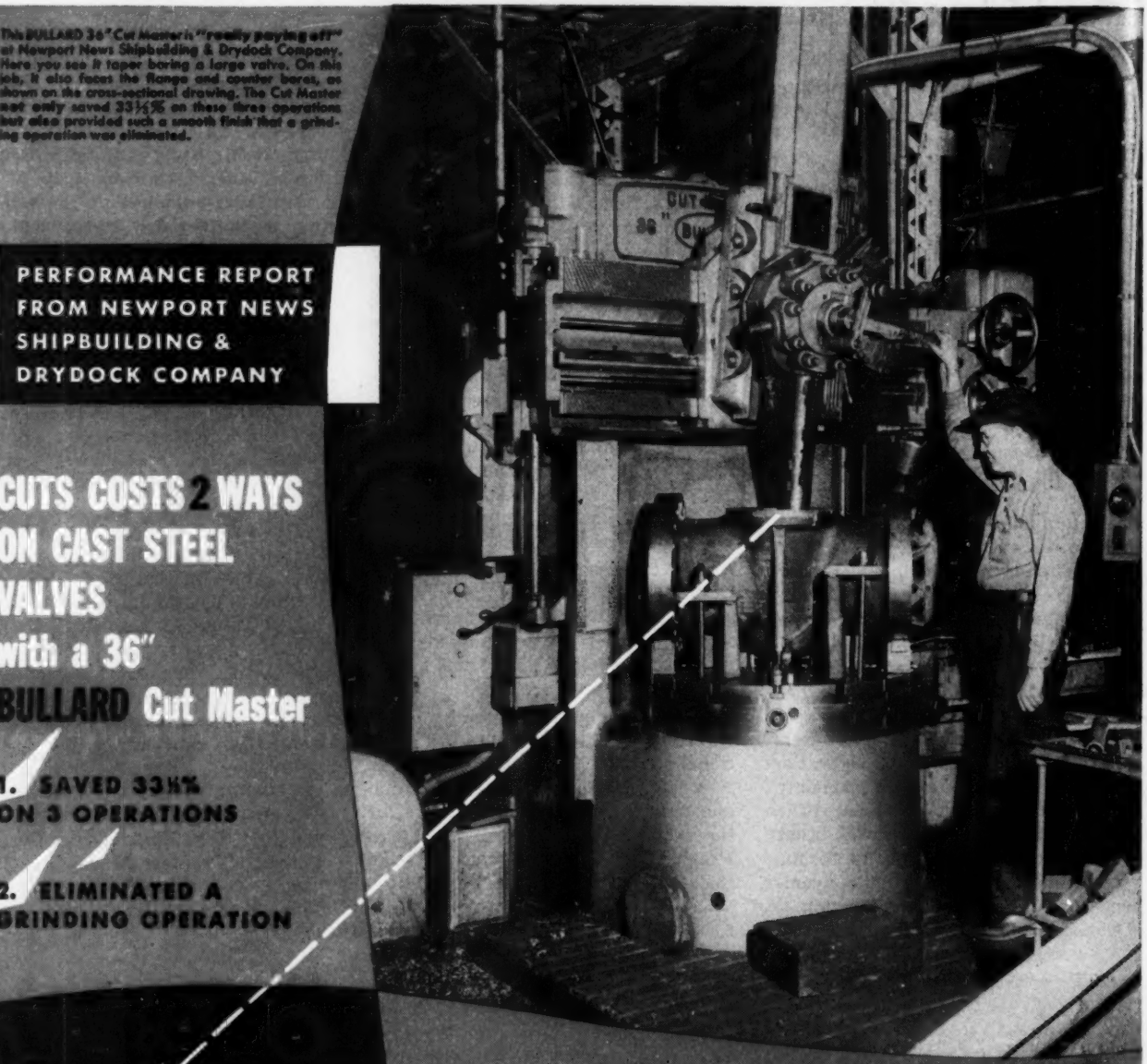
This BULLARD 36" Cut Master is "really paying off" at Newport News Shipbuilding & Drydock Company. Here you see it taper boring a large valve. On this job, it also faces the flange and counter bores, as shown on the cross-sectional drawing. The Cut Master not only saved 33⅓% on these three operations but also provided such a smooth finish that a grinding operation was eliminated.

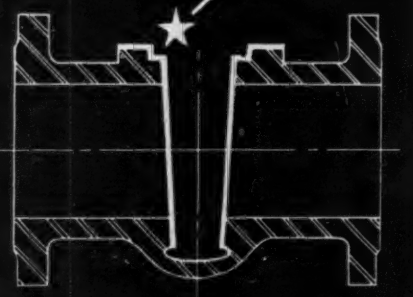
PERFORMANCE REPORT FROM NEWPORT NEWS SHIPBUILDING & DRYDOCK COMPANY

CUTS COSTS 2 WAYS ON CAST STEEL VALVES with a 36" BULLARD Cut Master

1. SAVED 33⅓% ON 3 OPERATIONS

2. ELIMINATED A GRINDING OPERATION





Cross sectional drawing of valve with heavy lines indicating machined surfaces.

You, too, can expect savings on most of your jobs. It's easy to see why: The bed is cast in one heavy, rigid piece. Spindle is firmly supported top and bottom by large Timken roller bearings. Screw feeds provide and maintain a high degree of machining accuracy.

OTHER COST-CUTTING ADVANTAGES

Because the BULLARD Cut Master was designed specifically to save time on and between cuts, you find other unique features. The rapid and positive speed selection with the BULLARD pendant type control, limit-stops for simplified dimensional duplication, and centralized operating controls speed up operations and conserve costs. For complete description of these and other distinctive features, as well as data on feeds, speeds and sizes, write for Bulletin CVTL-4-1 today.

THE BULLARD COMPANY, Bridgeport 2, Connecticut.

BULLARD

BULLARD CREATES *NEW METHODS* TO MAKE MACHINES DO MORE

By A. H. ALLEN *Detroit Editor, STEEL*

Mirrors of Motordom

Automakers expect little immediate improvement in supply of rolled steel as result of shift to f.o.b. mill pricing. Changeover comes at opportune time

DETROIT

AUTOMOTIVE steel buyers are busy trying to puzzle out whether the steel industry's shift to f.o.b. mill pricing is going to mean any more tonnage for them. They cannot see any improvement from mills which are already shipping tonnage on allocations, the only change is there will be a higher freight bill on shipments made after 12:01 a. m. July 13, the date when United States Steel placed its new policy in effect. A few rays of hope are seen from the more distant mills which could not afford the freight absorption required under the multiple basing point system on shipments into Detroit. Once these mills begin to find picking a little lean in their own backyard, their first thought will be the auto industry.

In times like the present, with the pressure on steel supply so intense, fabricators here are not inclined to bicker over paying a little extra freight on direct mill shipments. After all, some units of the motor industry have willingly paid freight on pig iron all the way from Utah and Mexico, for example, and were glad to get the material even though it was often of inferior quality. In addition, several companies are participating in scrap-ingot-sheet conversion arrangements on which multiple cross-hauling results in fantastic freight bills. These will be dropped like hot potatoes as soon as an established mill source for sheet and strip is found, whatever the freight.

Prices To Be Increased — As of this writing the local mill, Great Lakes Steel Corp., has not announced what its f.o.b. mill price on sheets and strip will be, although an announcement will undoubtedly be made in the near future. Trade reports run to the effect an average $4 per ton advance over base prices will be made, perhaps varying amounts on different products, but within the range of $3-$6. Obviously, mills outside the area cannot meet this price on a delivered basis, since the freight from nearby Cleveland alone is $6.80 per ton.

However, if mills in the Buffalo and Chicago districts want to be realistic about it, they could meet the Great Lakes price by water shipment into Detroit and trucking from docks. Steel has been coming into this area by boat right along, but it carries the full rail freight from the nearest basing point. Rail freight from Buffalo now is $8 a ton and from Chicago $8.80; boats could beat this by a wide margin. The interesting question comes up now: Can mills in Buffalo and Chicago districts legally charge rail freight when steel is shipped by water.

Automobile Production

Passenger Cars and Trucks—U. S. and Canada

	1948	1947
January	422,324	366,205
February	399,460	393,636
March	519,126	443,588
April	462,295	445,137
May	359,987	404,191
June	460,615*	421,466
6 mos.	2,623,807	2,474,223
July		400,944
August		364,473
September		444,501
October		461,536
November		417,493
December		492,109
12 mos.		5,055,284

* Preliminary.

Estimates for week ended:

	1948	1947
June 26	95,027	102,203
July 3	112,307	63,460
July 10	98,362	90,075
July 17	115,000	103,091

Estimates by Ward's Automotive Reports

Opportune Timing — In normal times, with steel mills competing for automotive business, a shift to f.o.b. pricing would be little short of chaotic. However, as things stand today, many of the questions which will arise are largely academic. Attitude of most customers is: "Sure, we know, but never mind that, just send us the steel." The steel industry could not have picked a more opportune moment to spring the change and as long as demand is running far ahead of supply there should be no major dislocations of markets. Doubtless this is the reason the mills moved so fast; they were under no direct compulsion to revise the pricing system.

When fabricators have to start sharpening their pencils and figure the exact impact of freight costs on their manufacturing costs the pressure will come on current distribution patterns. Natural trend will be for mill sources and steel users to be geographically magnetized. Either the mill will have to relocate nearer its larger customers, or remote users will have to transfer into proximity with mills. In either event the railroads stand to be the principal losers, a fact which is being lost sight of in most comment on the f.o.b. pricing. Economic pressures will force the elimination of cross hauling which currently has mounted to the highest proportions ever known.

Ford, GM To Benefit—Companies like General Motors and Ford which have been progressively decentralizing their manufacturing and assembly operations stand to reap the most benefit from f.o.b. prices. The spreading out of GM plants has been pretty well completed although the new outlook on steel could result in some further extensions. Ford, in the next five years, will make important moves in separating major fabricating processes from the overgrown Rouge plant. Two moves loom as most significant. One is the probable sale of the Ford steel mill properties to some company in the steel business. The other is the location of a large pressed steel plant somewhere outside the Detroit area.

The Ford steel mill would be a juicy plum for a steel producer seeking a major foothold in the Detroit area and although no deal is possible under present conditions when there is such a critical need for steel, this district probably will always be plus-market for steel, that is, more tonnage required than local mills can satisfy.

The increasing toll being exacted by freight on steel costs has suggested to some observers the possibility of sheet and strip mills installing press equipment to blank out autobody parts and shipping them in this form rather than in coils or packs. This might save 15-20 per cent on the weight of steel to be shipped; it would avoid back-shipping large tonnages of scrap to the mills and would be an added inducement to attract automotive buyers, particularly the smaller manufacturers. There was talk of such a move back

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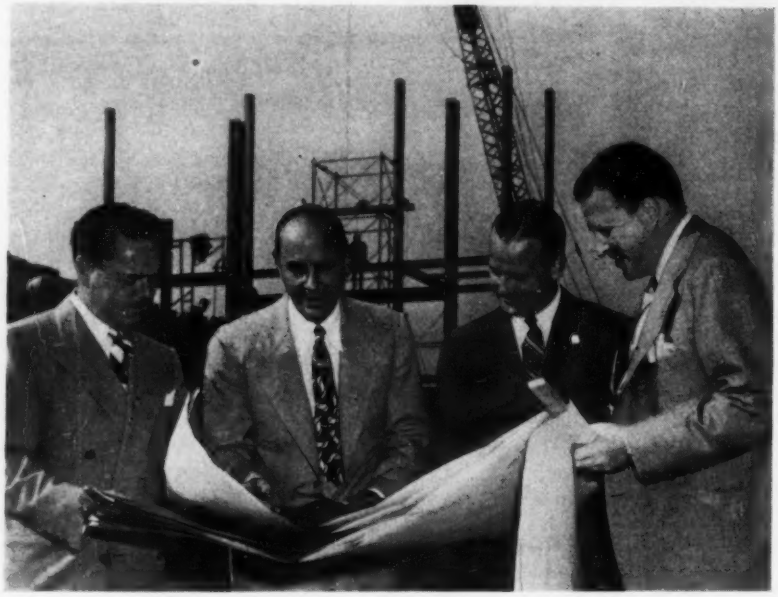

FORD EXPANSION: Progress on a dynamometer building, first unit in Ford's research and engineering center at Dearborn and scheduled for completion in September, was viewed recently by Ernest R. Breech, left, executive vice president; Harold T. Youngren, vice president and director of engineering; Benson Ford, vice president and director of the Lincoln-Mercury division; and Henry Ford II, company president. Each of the building's two wings will house 16 engine test cells

in the gloomy days of 1938 when many mills were offering automotive buyers concessions of $11 a ton on cold-rolled sheets.

May Attract New Capacity — To anyone contemplating erection of new steel capacity, Detroit looks like a ripe spot at this juncture. Great Lakes Steel and Rotary Electric Steel are the two sole sources of ingots, outside of Ford, and Rotary has been devoting a major proportion of its facilities to supplying ingots and sheet bar on scrap conversion orders from motor plants, principally Hudson. Other companies are rolling strip, bars, tubes and similar products, but depend on outside mills for the semifinished stocks. They are showing considerable apprehension over ability to maintain sources for semifinished, the latter mills being disinterested in this business because of its low or lack of profit margin.

Integration of McLouth Seen

One project which is hot at the moment is being mapped out by McLouth Steel Corp., supplier of hot and cold-rolled strip steel, in both carbon and stainless varieties. Faced with the likelihood of being cut off eventually from semifinished sources, the company recently purchased a war surplus electric furnace plant in the Chicago area. Included in the purchase were a 60-ton and a 30-ton electric melting furnace, steel building, cranes and accessory equipment. These facilities will be moved to the Detroit area, two options having been acquired on property in the downriver area near Trenton, Mich. To round them out it will be necessary to install soaking pits, a blooming mill and handling equipment for processing ingots into slabs. An engineering firm is now drawing up plans for what probably will be a completely integrated electric steel plant, similar in character to that of Rotary Electric Steel Co. Capacity of the two furnaces would be approximately 125,000 tons annually.

Will Need Low Phos Scrap—It is a good bet that McLouth will be pouring ingots at its new Trenton plant by November or December. At the start the ingots will be traded for semifinished, pending installation of soaking pits and blooming mill. Incidentally, two additional 70-ton electric furnaces are on order for the plant, making a battery of four. The new furnaces would bring plant capacity up to around 300,000 tons a year. Just where the company plans to round up 25,000 tons of low-phos plate scrap every month is a mystery which local scrap dealers and brokers will be called upon to answer.

Rotary Electric Steel, operating three electrics currently, two 60-ton and one 50-ton, with another 70-ton unit on order, is already a large user of this premium grade scrap and probably will be competing briskly with McLouth for choice tonnages. As mentioned before, a large chunk of the Rotary tonnage is moving to the Hudson Motor Co. sheet mill at Newcastle, Pa., the Valley Mfg. Co., in the form of sheet bar. Production is under way at the mill, with about 1500 tons shipped in June. It is a hand-type mill, and all equipment was purchased from the L. B. Foster Co. in Pittsburgh.

Hudson Undercoats

Hudson, incidentally, has initiated the practice of spraying all underbodies and trunk compartments with a mixture of bituminous compound and sand as a means of protecting against corrosion, insulating against heat and cold, sealing off the underbody tightly from road dust and fumes, and dampening out drumming noise which occasionally develops in flat expanses of sheet metal. The compound is sprayed on bodies after they have received their primer coat of paint and before the finish coat and final baking. Lowness of the Hudson bodies and their altered contours were productive of some mysterious swirling and sucking actions which thorough engineering analysis finally licked by undercoating.

Ford To Do Own Styling

Ford Motor Co. apparently will assume full control of design and styling of future models, in the light of termination of the contract with George W. Walker, independent industrial designer who was retained in July, 1946, to develop the 1949 Ford models. Mr. Walker's contract was renewed a year ago, but will lapse at the end of this month. He is well known in the field and in past years has styled Nash and Packard models as well as a host of consumer goods such as radios, vacuum cleaners, power boats and the like.

The 1949 Ford is credited around Detroit with being one of the best jobs Walker has ever done.

Plant To Be Auctioned

Public auction of plant and equipment of Sav-Way Industries Inc., 4875 East Eight-Mile Road, will be held July 28-29 at the plant. Organized shortly before the war, the company under direction of Tom Saffady, president, has been interested in a variety of projects, ranging all the way from machine tools to wheel toys, and goes under the hammer by order of the board of directors.

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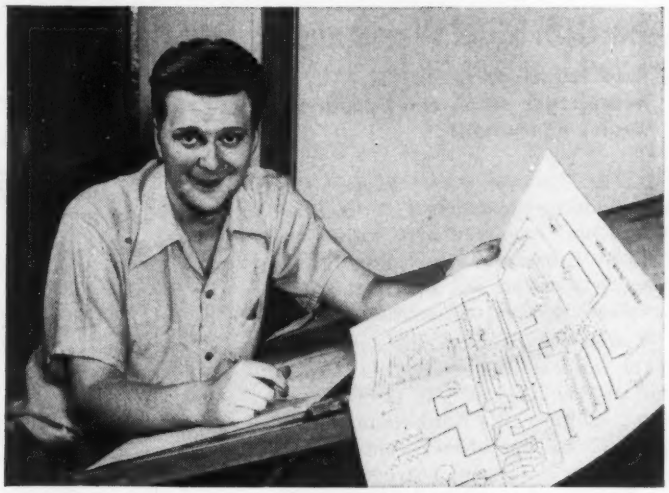

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New U.S. Steel Warehouse

San Francisco facility is 11th to warehouse steel, steel products, tools, equipment

UNITED States Steel Supply Co., warehousing subsidiary of U. S. Steel Corp., has opened a new warehouse in San Francisco in a move which may help to ease a major industry problem, that of distribution.

The new warehouse, the company's 11th, follows the opening of a new one in Los Angeles less than a year ago. Clifford W. Lord, manager of West Coast operations, said the facility will carry carbon, high strength, alloy and stainless steel, steel products, tools and equipment. Frank B. Stewart is the local plant manager.

Having an area of 260,016 sq ft, the building contains seven aisles, six of them 76½ ft wide and one 88½ ft. Overhead bridge cranes have five and 15 ton capacities. Two railroad spurs and a three-lane truckway the length of the building provide for shipping transportation at the unit. In addition to this new plant, the company operates warehouses in Boston, Newark, Baltimore, Pittsburgh, Cleveland, Chicago, Milwaukee, St. Paul, St. Louis and Los Angeles.

U.S. STEEL'S SECOND COAST WAREHOUSE BIDS TO EASE DISTRIBUTION PROBLEM

Parker Expands Pacific Division

ANTICIPATED spurt in aircraft production has motivated Parker Appliance Co., Cleveland, to double the manufacturing facilities of its Pacific Division through purchase of the Los Angeles plant of Air Associates Inc., Teterboro, N. J., for more than $300,000.

Completed late in 1941, the one-story building has approximately 42,000 sq ft of floor area on Century Blvd. close to plants of Douglas Aircraft and North American Aviation. H. E. Schroeder, Pacific Division manager for Parker, will continue as head of the company's expanded operations. These, in addition to an increased production of flared tube couplings and aircraft valves, will include manufacture of the company's new gate valve and high pressure check valves to meet the requirements of the 70-group aircraft program.

Sharon's Expansion Progresses

REMODELING of Sharon Steel Corp.'s 24-inch mill at its Sharon, Pa., works has been completed with the result that the company's strip capacity is greatly increased. The project included installation of a new heating furnace and a new roughing mill. A 14-inch strip mill which is to be installed and in operation by the turn of the year will further expand strip output, Henry A. Roemer, president and chairman, has announced.

These changes and additions are part of Sharon's multimillion dollar expansion which, coupled with acquisition of the Farrell Works from Carnegie-Illinois, have put Sharon in a capacity tonnage class with the larger independents. Its ingot capacity is now approximately 1,700,000 tons a year, but this figure could be increased substantially with relatively little expenditure if sufficient raw materials to feed the facilities were available.

Currently the company is developing its Lowellville Works as a specialty steel plant. It recently installed another 30-ton electric furnace and is now putting in a five-ton electric furnace. Originally the facility had a 30-ton electric furnace and six large open hearths.

Admiral Buys Range Division

ADMIRAL Corp., Chicago, has purchased from Pressed Steel Car Co. the latter's electric range manufacturing facilities in Chicago. The acquisition includes a 20-year lease on a one-story plant, comprising approximately 280,000 square feet, and equipment, certain inventories and tradenames. Price was reported in the neighborhood of $2,500,000.

It is stated by Pressed Steel Car that disposal of its domestic appliance division will enable it to concentrate on production of railroad cars and equipment for which international demand is increasing.

Admiral plans to continue production of electric ranges under the car company's tradename, Presteline, and will expand the plant's facilities for manufacturing its own line of electric ranges. The acquisition constitutes Admiral's second major expansion in the home appliance field. In 1944, the company obtained the electric range, refrigerator and home freezer divisions of Stewart-Warner Corp.

Lincoln Welding Prizes Awarded

AWARDS of $1000 to the University of Cincinnati, $500 to the University of Minnesota and $250 to Iowa State College have been announced by the James F. Lincoln Arc Welding Foundation which has named the winners of its annual engineering undergraduate award and scholarship program whereby awards are given to undergraduates for papers on arc welding and its uses. The scholarship funds are given to the schools in which the authors of the three best papers were registered with duplicate cash awards made to each author.

The paper, "Standardized Welded Building Structures for Railroads," received first prize for Alan R. Cripe. "Arc Welded Design as Applied to a Combination Jay Buck-Stacker," was winner of the second award for William D. McCoy. Third main award went to William W. Robinson for his paper, "Vises Fabricated by Arc Welding vs. Cast Vises." In addition to these, smaller awards totaling $3500 were made to 68 undergraduates from 43 colleges.

Houghton of Canada Opens Plant

E. F. HOUGHTON & Co. of Canada Ltd., an affiliate of E. F. Houghton & Co. of Philadelphia, has begun operations in its new Toronto, Ont., plant which will specialize in the manufacture of such metalworking products as carburizers, quenching oils, cutting oils, heat treating salts and drawing compounds.

The plant, under the direction of

F. H. MacInnis, vice president and director of sales, is located at 100 Symes Rd. on a 2½-acre tract.

Canada Ups Minerals Output

PRODUCTION of 13 of Canada's 16 leading minerals increased in April as compared with the same month last year. The exceptions to the rising trend, as listed by the Dominion Bureau of Statistics, were feldspar, which fell from 2571 tons to 2339 tons; lead from 25,850,461 lb to 25,689,655 lb; and salt from 64,321 tons to 57,861 tons.

Output of Canada's other major minerals in April (with April, 1947, figures in parentheses) was as follows: Asbestos, 61,590 tons (60,517); cement, 1,268,461 bbl (1,062,054); clay products, $1,607,672 ($999,807); coal 1,602,525 tons (850,887); copper, 41,829,639 lb (39,947,433); gold, 286,070 fine ounces (254,889); gypsum, 221,121 tons (89,639); lime, 88,462 tons (82,126); nickel, 26,389,468 lb (20,043,186); petroleum, 795,724 bbl (602,129); silver, 1,089,755 fine ounces (851,464); and zinc, 39,088,168 lb (36,341,332).

Plans New Canadian Pipe Mill

MOUNTING production of petroleum in Canadian fields is intensifying the demand for oil country goods, and in recognition of the needs, Page Hearsey Tubes Ltd., Toronto, will soon embark on construction of a new electric weld pipe mill of special design to replace the present lap weld mill at Welland, Ont.

Company officials point out it will not be necessary to assume the heavy additional expenditure for auxiliary equipment, finishing, threading, testing, storage and shipping, which such a changeover ordinarily would entail, as the lap weld finishing department, with machines of the latest design, can take care of production from the contemplated unit.

The new mill will have greater flexibility in production, lower costs and wider range of sizes and lengths.

Dominion Steel Maps Expansion

THROUGH expenditure of $6 million on two major improvement programs, the Dominion Steel & Coal Corp., Sydney, N. S., expects to increase its steel production substantially. Less than a year ago work was started on replacement of a battery of 53 coke ovens, the project to cost $4 million and to be completed early next year. Recently the company announced its intention to spend $2 million at its seaboard power plant near Glace Bay, with completion scheduled in two years.

Briefs . . . .

Paragraph mentions of developments of interest and significance within the metalworking industry

Shepard Niles Crane & Hoist Corp., Montour Falls, N. Y., has moved its Cleveland sales office from 1433 E. 12th St. to 624 Penton Bldg. Harry A. Baugh is district manager and E. R. Hausrath is sales engineer. New phone number is Superior 7020.

—o—

Sylvania Electric Products Inc., New York, manufacturer of electronic devices, lamps and many other related products, has begun construction on the first of a group of research laboratories at Bayside, N. Y.

—o—

David Smith Steel Co., Brooklyn, N. Y., warehouse distributor of steel to the industrial and construction trades, will add a number of building materials manufactured by Koppers Co., Pittsburgh, to its line of products. First item will be Plastipitch, a corrosion-resisting sheet steel.

—o—

Thor Corp., Cicero, Ill., has purchased from Mathieson Chemical Corp. a three-story factory at 2010 S. Marshall Blvd., Chicago, to be used for its service, parts and meter machine departments. Centralization of the three departments will provide more production space in the Cicero plant where they have been located.

—o—

National Cylinder Gas Co., Chicago, has opened new plants at Houston, Tex., and Tulsa, Okla., to house both manufacturing facilities and district sales offices. Houston office at 6201 Industrial Way is managed by B. B. Drury Jr., and the Tulsa office at 1319 E. Peoria Ave. is headed by C. H. Wallace.

—o—

Detroit Die Set Corp., Detroit, manufacturer of die sets and die makers' supplies, has appointed Ameco Co., Cleveland, as its sales representative for northeastern Ohio, not Ohio, as previously stated.

—o—

Farm Tools Inc., manufacturer of agricultural implements, has merged with Heinz & Muenschauer, maker of tractors. Surviving firm, Farm Tools Inc., will have offices in Cleveland and will operate the plants of the combined companies in Evansville, Ind., Peoria, Ill., and Mansfield, O.

—o—

Rust Engineering Co., Pittsburgh, has been authorized by Socony-Vacuum Oil Co. Inc. to act as engineer-contractor for units to produce ethylene and aromatics by Socony's patented cracking process.

—o—

Ashland Oil & Refining Co., Ashland, Ky., and Allied Oil Co. Inc., Cleveland, plan to merge, and the proposed agreement will be submitted to stockholders for approval. Allied will be a self-operating subsidiary of Ashland.

—o—

Seeger Refrigerator Co., St. Paul, will move total production of Coldspot refrigerators from St. Paul to Evansville, Ind. Seeger makes the line for Sears, Roebuck & Co. St. Paul works will be used for other production.

—o—

Modine Mfg. Co., Racine, Wis., manufacturer of heating and air conditioning apparatus, has broken ground for an addition to its Paducah, Ky., plant.

—o—

Dumas Steel Corp., Pittsburgh, dealer in secondary sheet and strip items, has bought property from Knox Glass Associates Inc. in Pittsburgh for approximately $250,000. Purchase includes three acres of land and buildings containing 80,000 sq ft of floor area at 25th and Smallman Sts. to 26th St.

—o—

McConway & Torley Corp., Pittsburgh, producer of steel castings and railroad specialties, reports that the sales headquarters of its subsidiary, Baltimore Foundry & Machine Corp., have been transferred from Baltimore to Pittsburgh.

—o—

Economic Cooperation Administration reports that total ECA authorization as of July 10 is $788,914,690. The total figure includes allotments for western European countries, Trieste and China.

—o—

Atomic Energy Commission will test by diamond drilling for uranium-bearing ores in 115 square miles of public land in southwestern Colorado and southeastern Utah. Department of the Interior has withdrawn this tract from entry and has reserved it for AEC use.

—o—

Lima-Hamilton Corp., Lima, O., has purchased the government-owned portion of the Lima Tank Arsenal, Lima, from War Assets Administration for $303,372. Corporation plans to manufacture cranes, draglines and heavy shovels at the facility.

The Business Trend

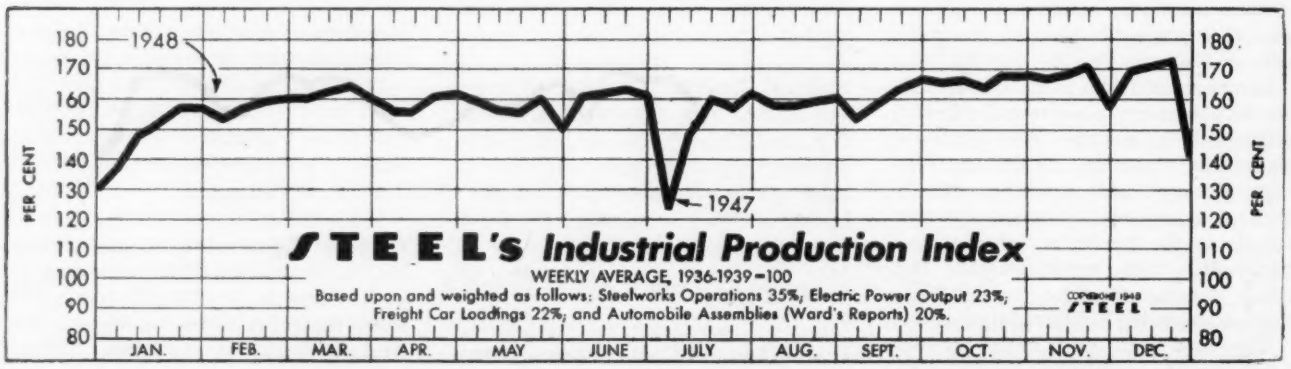
VACATION of coal miners and the subsequent "captive" mine strike plus the holiday-shortened work-week reduced industrial activity in the week ended July 10. Reflecting these events, STEEL's index of production dropped eleven points to 154 per cent (preliminary) of the 1936-1939 weekly average. This level of activity was well above that of the Fourth of July holiday week last year, however, when the index fell to 124 per cent in the week ended July 5 and recovered only to 149 per cent by July 12, 1947. All basic indicators of production and trade are sustained above last year's levels.

COAL—The seventh postwar coal strike, directed against the steel industry's captive mines but attended by scattered sympathy walkouts in commercial mines, lacked the size to force immediate and widespread curtailment of steelworks' operations although some blast furnaces and foundries reduced their activity. In the July 3 week with many mines closed for vacations, bituminous coal production dropped more than 9 million tons to 3,470,000 tons and coal car loadings were off 134,943 cars to 56,773 from the previous week.

STEEL—The steel industry's estimated ingot rate fell six points to 89 per cent of capacity in the July 10 week as the result of holiday observance, the coal strike and production loss in the Chicago district after a steel plant explosion. Settlement last week of the strike, however, assured prompt return of the rate to June levels. Steel users are uncertain, as yet, of the full meaning of the change in pricing method. Realization is dawning that not only will incoming steel shipments be affected but also outgoing end-product shipments, which in a number of industries are basing-point priced. Most fearful of dislocation are metalworking companies in districts which have an excess of consuming capacity over producing facilities.

EMPLOYMENT—To keep overall production and trade at recent high levels, civilian employment had mounted to an all-time high in June of 61,296,000, with 51,900,000 of this total engaged in non-agricultural employment, also a new record. Influx of students and of women into the labor force followed the normal seasonal trend and brought the latest month's employment total to 2.6 million over May's figure.

CONSTRUCTION—New record for construction activity was set in June when value of construction rose 11 per cent over May to reach $1,605 million, the largest amount since 1939 when the Bureau of Labor Statistics began collecting monthly data. Employment by the industry increased by 133,000 and totaled 2,182,000, the highest level since November, 1942. June marked the first month since June, 1940, in which private expenditures for commercial building exceeded those for new plant construction. Industrial expenditures have been dropping steadily during the past year and in June fell $2 million to $110 million.



Index (chart above): Week ended July 10 (preliminary) 154 Previous Week 165 Month Ago 168 Year Ago 149

BAROMETERS of BUSINESS

INDUSTRY	Latest Period*	Prior Week	Month Ago	Year Ago
Steel Ingot Output (per cent of capacity)†	89.0	95.0	96.0	86.0
Electric Power Distributed (million kilowatt hours)	4,760	5,166	5,132	4,531
Bituminous Coal Production (daily av.—1000 tons)	577	2,129	2,164	327
Petroleum Production (daily av.—1000 bbl.)	5,480	5,484	5,479	5,045
Construction Volume (ENR—Unit $1,000,000)	$168.7	$160.9	$174.1	$78.7
Automobile and Truck Output (Ward's—number units)	98,362	112,307	109,831	90,075

* Dates on request. † 1948 weekly capacity is 1,802,476 net tons. 1947 weekly capacity was 1,749,928 net tons.

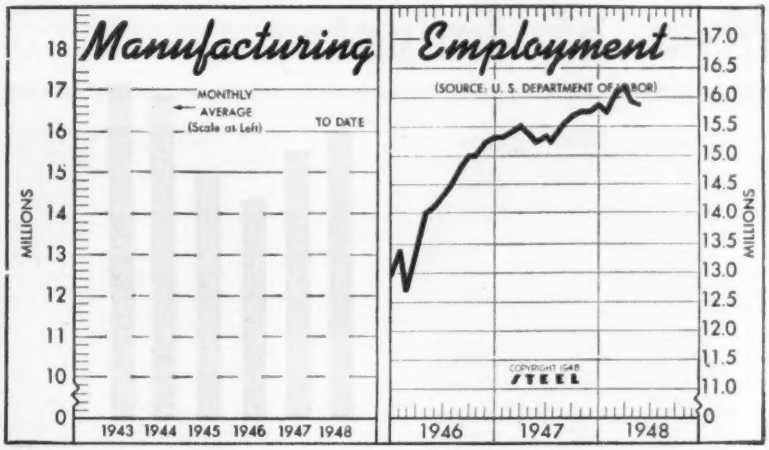
TRADE				
Freight Carloadings (unit—1000 cars)	790†	757	907	807
Business Failures (Dun & Bradstreet, number)	88	103	110	49
Money in Circulation (in millions of dollars)‡	$28,142	$27,900	$27,864	$28,363
Department Store Sales (change from like wk. a yr. ago)‡	+27%	+7%	−4%	+8%

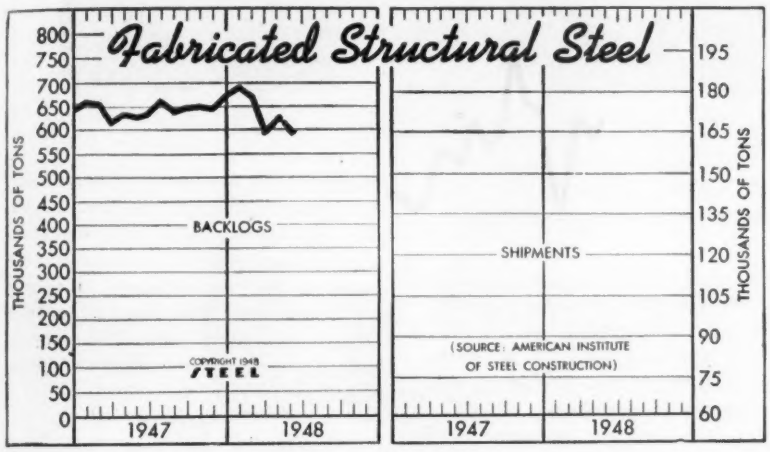
† Preliminary. ‡ Federal Reserve Board.

Factory Employment

(000 omitted)

	1948	1947	1946
January	15,878	15,372	13,499
February	16,183	15,475	12,751
March	16,269	15,510	13,433
April	15,896	15,750	14,054
May	15,796	15,569	14,159
June	.....	15,327	14,371
July	.....	15,209	14,526
August	.....	15,593	14,876
September	.....	15,798	15,035
October	.....	15,831	15,064
November	.....	15,872	15,271
December	.....	15,965	15,348
Monthly Ave.	.....	15,606	14,365





Fabricated Structural Steel

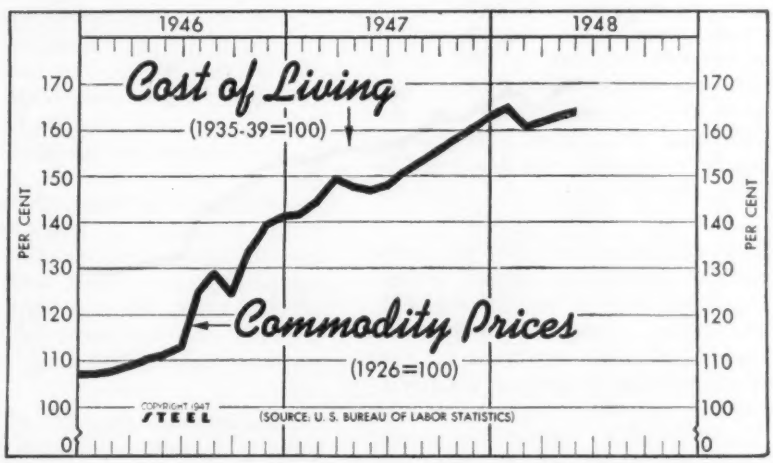
(000 Tons)

	Shipments			Backlogs		
	1948	1947	1946	1948	1947	1946
Jan.	146.4	140.6	107.5	692	661	552
Feb.	141.6	136.1	63.8	673	656	551
Mar.	167.0	137.8	102.8	597	614	605
Apr.	162.3*	157.4	122.5	630	632	674
May	168.5	155.0	124.4	593	628	615
June	....	151.9	126.8	...	634	642
July	....	169.9	140.2	...	661	674
Aug.	....	158.0	157.5	...	639	651
Sept.	....	164.3	141.9	...	648	682
Oct.	....	196.1	164.7	...	649	660
Nov.	....	175.0	157.3	...	645	665
Dec.	....	173.0	142.1	...	671	646
Total	....	1,915.1	1,551.6			

* Revised.

Wholesale Commodity Price—Cost of Living Indexes

	Commodities (1926=100)			Living Cost (1935-39=100)		
	1948	1947	1946	1948	1947	1946
Jan.	165.7	141.5	107.1	168.8	153.3	129.9
Feb.	160.8	144.5	107.7	167.5	153.2	129.6
Mar.	161.4	149.5	108.9	166.9	156.3	130.2
Apr.	162.7	147.7	110.2	169.3	156.2	131.1
May	163.8	147.1	111.0	170.5	156.0	131.7
June	....	148.0	112.9	....	157.1	133.3
July	....	150.8	124.7	....	158.4	141.2
Aug.	....	153.6	129.1	....	160.3	144.1
Sept.	....	157.4	124.0	....	163.8	145.9
Oct.	....	158.5	134.1	....	163.8	148.6
Nov.	....	159.7	139.7	....	164.9	152.2
Dec.	....	163.2	140.9	....	167.0	153.3
Ave.	....	151.8	120.9	....	159.2	139.3



FINANCE

	Latest Period*	Prior Week	Month Ago	Year Ago
Bank Clearings (Dun & Bradstreet—millions)	$12,251	$14,056	$13,071	$10,961
Federal Gross Debt (billions)	$251.9	$252.4	$251.8	$258.2
Bond Volume, NYSE (millions)	$15.1	$18.8	$27.7	$18.2
Stocks Sales, NYSE (thousands)	4,232	4,764	7,542	6,098
Loans and Investments (billions)†	$62.6	$62.9	$62.9	$63.4
United States Gov't. Obligations Held (millions)†	$34,632	$34,869	$35,218	$38,990

† Member banks, Federal Reserve System.

PRICES

STEEL's composite finished steel price average	$80.27	$80.27	$80.27	$69.82
All Commodities†	166.7	166.7	164.2	148.0
Industrial Raw Materials†	184.3	185.2	180.9	162.6
Manufactured Products†	160.9	160.5	158.6	142.8

† Bureau of Labor Statistics Index, 1926=100.

Men of Industry

THOMAS W. LLOYD

A. M. TVERGAARD

F. L. SARGEANT

Harbison-Walker Refractories Co., Pittsburgh, has announced the recent appointment of **Thomas W. Lloyd** as district superintendent of the company works at Baltimore, and Chester, Pa. **A. M. Tvergaard** has been named superintendent of the new Baltimore plant, which is scheduled for completion in early fall. Mr. Lloyd, associated with Harbison-Walker Refractories since 1929, has been superintendent of the Baltimore works since 1947. Mr. Tvergaard joined the company in 1944 as an employee of its subsidiary company, Northwest Magnesite Co., at the Cape May, N. J., plant. He was appointed manager of that plant in January, 1947.

—o—

John S. Conant has been appointed general purchasing agent, Willys-Overland Motors Inc., Toledo, O., succeeding **George Edelistein,** resigned. General supervisor of production planning and priorities administrator for American Steel & Wire Co., Cleveland, during the period 1940-1943, Mr. Conant has been consultant in industrial operations and management with Technical Managers Inc., New York, since 1946.

—o—

Laurence J. White has become affiliated with Wellman Bronze & Aluminum Co., Cleveland, as its Chicago area representative. He has been associated with the metal and machinery industry for 20 years.

—o—

Dell W. Savage has been appointed eastern sales manager for Thew Shovel Co., with headquarters in New York. **Robert Maynard** has been appointed mid-Atlantic sales manager in Washington, and **J. F. Beles,** North Midwest district manager for the company, with headquarters in Milwaukee.

—o—

Penn Metal Co. Inc., Boston, has announced the retirement, after 22 years with the company, of **A. Vall Spinosa,** executive vice president at the company's Parkersburg, W. Va., plant. He will continue to serve the company in an advisory capacity. Elected vice president in charge of production, and succeeding Mr. Spinosa at Parkersburg, is **George A. Stevenson,** who was with Ames Baldwin Wyoming Co., Parkersburg, as assistant to the president since 1941. Previous to that he was vice president and director of Knickerbocker Stamping Co. **Hugh Gallaher** has been appointed director of domestic and export sales, with offices at New York. He has been a vice president of Penn Metal Co. and director of export sales since 1931.

—o—

C. H. Longfield Jr., formerly with the Detroit sales office, Sharon Steel Corp., has joined the sales department of Cold Metal Products Co., producer of cold rolled strip steel, with headquarters in the general sales office in Youngstown.

—o—

Universal-Cyclops Steel Corp., Bridgeville, Pa., announces the following transfer and additions to its sales force: **V. L. Goulet,** sales representative, formerly with headquarters at the Chicago office, has transferred to Rock Island, Ill., where the company has opened a new sales office. He will cover western Illinois and Iowa area. **William N. Smith** has been appointed sales representative, with headquarters at Chicago, and assigned to northern Indiana and metropolitan Chicago; **Robert A. Bilaitis,** appointed sales representative with headquarters at Detroit, and assigned to Detroit, western Michigan and central Michigan area; **H. Corwin Miller,** appointed sales representative with headquarters at the Worcester office.

—o—

F. L. Sargeant has been appointed manager of the New York Sales Division, Reynolds Metals Co., Louisville. He succeeds **Stuart Smith,** appointed special representative to the United States Air Forces, with headquarters in Reynold's Dayton, O., office. Mr. Sargeant has been actively engaged in sales for the last four and a half years, having been assigned to Reynolds' Kansas City and St. Louis sales divisions. He has served as manager of both divisions. In assuming managership of the New York Sales Division, Mr. Sargeant will handle sales of all Reynolds' Aluminum Division mill products.

—o—

Bailey Meter Co., Cleveland, designer and manufacturer of power and process instruments and controls, has announced the appointment of two new branch office managers: **H. T. Sawyer,** formerly manager of the company's Seattle office, has been promoted to manager of its larger Buffalo office, succeeding the late **S. W. Nelson; K. E. Atwood** has been appointed Seattle office manager, succeeding Mr. Sawyer. For the last 10 years Mr. Atwood has been attached to the company's Boston office.

—o—

F. F. Tiffany has been named manager of the Dayton, O., sales district, Reynolds Metals Co. Mr. Tiffany

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(ONLY ONE REASON FOR USING COMMON STEEL – LOWER FIRST COST)

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HARPER'S 25th Anniversary

served as district manager of the Nashville, Tenn., sales district office since February, 1947. He succeeds **Alan D. Tate,** who has resigned after three years as manager of the Dayton district. **Wilfred P. Lawless** succeeds Mr. Tiffany at Nashville. He formerly was in charge of Reynolds' Charlotte, N. C., sales district.

—o—

Harold F. Smiddy has been appointed general manager of the chemical department, General Electric Co., with headquarters in Pittsfield, Mass. Since March, Mr. Smiddy has been on the staff of the president of the company.

—o—

David K. Colesberry has been appointed general sales manager, Harrington & King Perforating Co., Chicago. He comes to Harrington & King after 22 years with Sharples Corp., centrifugal and process engineer at Philadelphia.

—o—

Worthington Pump & Machinery Corp., Harrison, N. J., announces the appointment of **Harold T. Anderson** as assistant to the general sales manager, in charge of sales production relations, with headquarters at the Harrison works. Employed by Worthington since 1924 in various capacities, Mr. Anderson joined the sales department in 1940, and was engaged in subcontracting activities until 1944, when he was transferred to the Steam Power Division of the general sales department.

—o—

I. M. Laddon has resigned as executive vice president, Consolidated Vultee Aircraft Corp., San Diego, Calif. He will remain as a member of the board of directors. Most of Mr. Laddon's duties have been taken over by the corporation's new president, **LaMotte T. Cohu.** Mr. Laddon joined Consolidated Aircraft Corp. in 1927, and served as vice president in charge of engineering for many years. When Consolidated was merged with Vultee Aircraft Inc., he became executive vice president, a position he has held for more than five years.

—o—

Kenneth F. Ode has been appointed works manager, Trackson Co., Milwaukee. For the past 14 years Mr. Ode has been associated with Falk Corp., Milwaukee, in capacities of personnel director, plant engineer and superintendent, Welding Division. He will join Trackson Co., manufacturer of tractor equipment, Aug. 1.

—o—

A. L. Hawk has been appointed as assistant to the western district manager in Chicago, and **R. B. Hazard** as manager of distributor sales, western district, for Raybestos-Manhattan Inc., Manhattan Rubber Division, Passaic, N. J. Both men have been associated with the company for many years.

—o—

John L. Duquet has been appointed to the board of directors, Montreal Locomotive Works, Montreal, Canada, succeeding the late **Col. J. L. Ralston.** Mr. Duquet is a partner in the law firm of Ralston, Kearney, Duquet & MacKay, Montreal, and is also a director of several companies.

—o—

George L. Roth has been elected president, White-Roth Machine Corp., Lorain, O. He was formerly vice president, and succeeds **G. A. White,** who retired from the corporation. Previous business experience for Mr. Roth includes service as chief engineer, Franklin Engine & Mfg. Co., Franklin, Pa., and as vice president, Arms-Franklin Corp., same city. New vice president is **I. G. Roth. M. J. Powers,** former purchasing agent, has been elected secretary, and **Harry Youtt,** previously production manager, is now White-Roth's general manager.

—o—

Walter S. Marder, comptroller, Daystrom Corp., Olean and Friendship, N. Y., has been appointed sales manager. He is succeeded as comptroller by **Glenwood O. Evans,** who has been general auditor for ATF Inc., Elizabeth, N. J., the parent company. Mr. Evans now will be located at Olean, and Mr. Marder will make his headquarters at the firm's New York sales offices, and will work in close co-ordination with T. Baumritter Co. Inc., which sells Daystrom's chromed furniture nationally.

—o—

Fort Duquesne Steel Co., Pittsburgh, processor and distributor of flat rolled steel products, has appointed **Homer L. Ruh** as its district sales representative in Columbus and Springfield, O., and the surrounding area.

—o—

General Detroit Corp. announces the appointment of **Harris Popplewell** as eastern division sales manager for the United States. **C. W. Abele** will remain as regional sales manager in charge of the corporation's New York office, and will assume responsibility for the management of the firm's Export Division. **Robert L. Weir** will succeed Mr. Popplewell as head of the corporation's Canadian subsidiary, General Detroit Corp., Canada, Ltd. Coincidental with the new appointments, the Canadian corporation is transferring its sales headquarters to its new factory location in Windsor. Mr. Weir formerly held the position of assistant sales manager in charge of the Extinguisher Division.

—o—

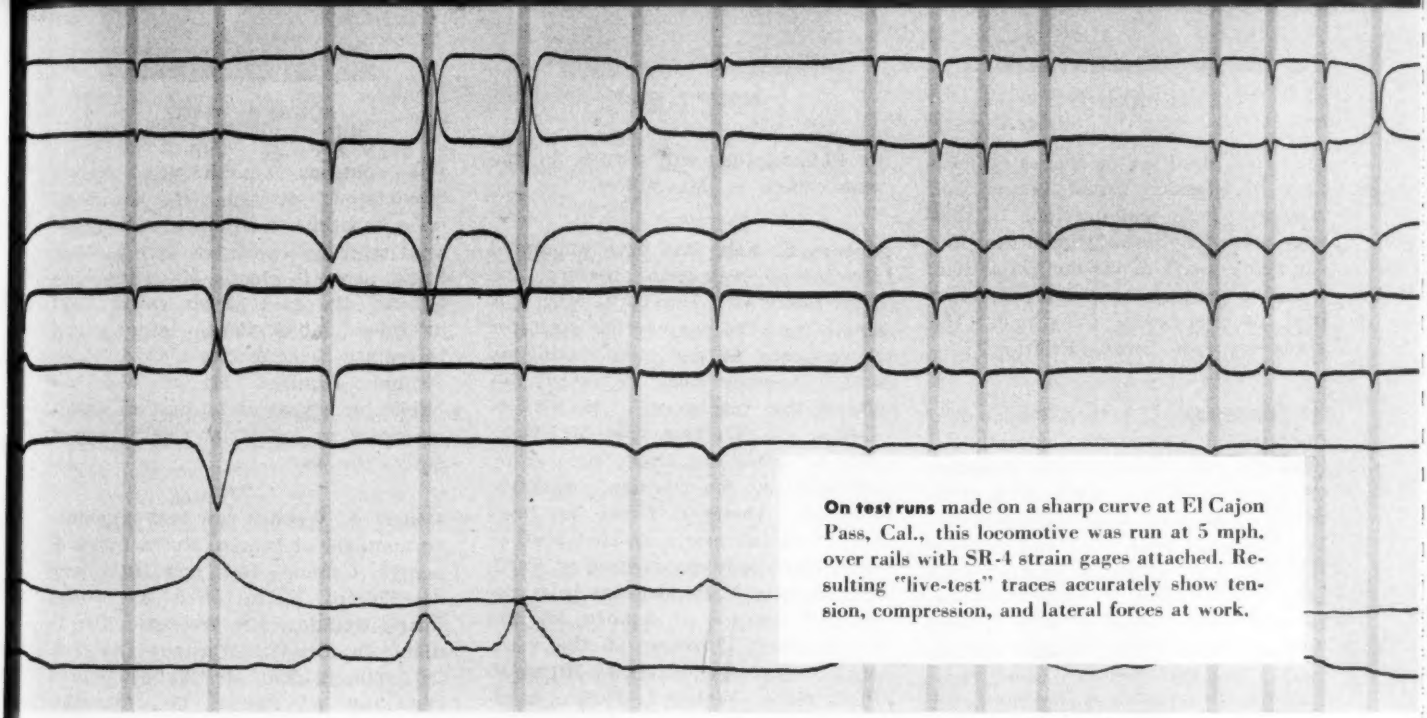
A. Ray MacPherson has joined Thermoid Co., Trenton, N. J., as manager of its Industrial Friction Materials Sales Division. Prior to joining Ther-

HAROLD T. ANDERSON

GEORGE L. ROTH

HARRIS POPPLEWELL

How railroads help reduce wear and tear on trackage...with photo-trace recordings



On test runs made on a sharp curve at El Cajon Pass, Cal., this locomotive was run at 5 mph. over rails with SR-4 strain gages attached. Resulting "live-test" traces accurately show tension, compression, and lateral forces at work.

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They were obtained by placing SR-4 strain gages on three points of a cross-section of the inner rail (top three traces), and outer rail (middle three traces). Tension and compression for the top six traces is 40,000 lb./sq. in. per inch deflection on the original scale. Bottom two traces represent lateral movement of the heads of the two rails on a scale of .33 in. per inch deflection on the original scale.

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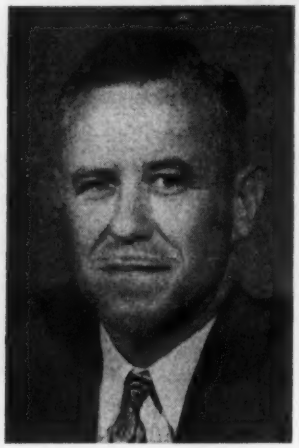
AL CLEMENTS



ROBERT F. KOHR

ROBERT A. WEBBER

moid, Mr. MacPherson was sales manager of Standco Brake Lining Co., Houston, Tex., and previous to that was with Raybestos-Manhattan Inc. for many years in various capacities. For five years he manufactured and sold his own brake lining under the trade name of "Brake Friction."

—o—

Al Clements has been appointed manager of a new office recently established in Chicago by Lombard Corp., Youngstown. This office is located at 4344-58 West Roosevelt Rd. Mr. Clements was chief engineer for the past two years at Warren City Mfg. Co., Warren, O. He previously had been connected with Verson Allsteel Press Co., Chicago, for six years, the last four as chief engineer, and other associations were with Clearing Machine Corp., Chicgo, Western Clock Co., LaSalle, Ill., and Western Electric Co., Chicago.

—o—

C. J. Sharp, president, Acme Steel Co., Chicago, has been elected a trustee of Illinois Institute of Technology, Chicago.

—o—

Dr. Karl Cohen, one of the leading contributors to the design of the K-25 plant at Oak Ridge, Tenn., and former specialist on industrial applications of atomic energy for Standard Oil Development Co., has joined H. K. Ferguson Co., industrial engineer and builder, Cleveland, New York, and Houston, Tex., as technical director for atomic activities.

—o—

Ampco Metal Inc., Milwaukee, announces the transfer of **J. E. Cook** from the Cincinnati district office to the Philadelphia district office, effective Aug. 16. Mr. Cook will be succeeded by **F. A. Burnett,** the Indianapolis district manager. **W. F. Taff** will take over the Indianapolis district, and **Elmer E. Whitson,** now in Philadelphia, will return to the main office in Milwaukee.

—o—

Robert F. Kohr has been appointed director of engineering research for Ford Motor Co., Dearborn, Mich. A member of the engineering staff for three years, he has been serving as acting director since February, following the resignation of **William S. James.** In his new post Mr. Kohr will be under the direct supervision of **Earle S. MacPherson,** executive engineer. **Henry C. Grebe** has been named to the newly created post of director of body engineering at Ford, and **Norbert A. Bogdan** has been appointed director of finance for the International Division of the company, with headquarters at Highland Park, Mich. **Walter L. McKee,** associated with European operations of Remington Rand Inc. until recently, has joined Ford as regional director for Europe of the International Division, with offices at Highland Park.

—o—

E. J. Gelttmann has joined the Carbonite Metal Corp., Burlington, Wis., as vice president and general manager. For the past six years, he has been associated with the Fisher Furnace Division of Lindberg Engineering Co., Chicago, as sales manager.

—o—

Air Reduction Sales Co., New York, announces the appointment of **John J. Lincoln Jr.** as manager of the railroad department, with headquarters in New York. He joined the company in 1924. After sales work in several districts, he became manager in Pittsburgh in 1934, then moved to New York as regional sales manager in 1938. Since 1945 he has been director of sales services.

—o—

Frank A. Lauerman has resumed his position as superintendent of industrial relations, Republic Steel Corp.'s Youngstown district. He has been on a wartime assignment as industrial relations executive with a West Coast aircraft plant. Mr. Lauerman entered the steel business in 1917 at Inland Steel Corp., later joined Interstate Iron & Steel Co., which Republic acquired. He was with Republic for a year and a half as superintendent of industrial relations just before the war.

—o—

Robert A. Webber has been appointed manager of Electro Refractories & Alloys (Canada) Ltd., new subsidiary of Electro Refractories & Alloys Corp., Buffalo. Mr. Webber's title is manager, Electric Furnace Division. In January, 1936, Mr. Webber joined the staff of Exolon Co., Thorold, Ont., where he was promoted to plant superintendent in 1942. He left Exolon Co. this spring to assume his new responsibilities with Electro Refractories & Alloys (Canada) Ltd. at Cap-de-la-Madeleine, Quebec.

—o—

F. C. Prescott and **C. N. Hathway** have been named assistant industrial relations manager and assistant labor relations manager, respectively, for Caterpillar Tractor Co., Peoria, Ill. They have both been associated with the company for a number of years.

—o—

Duraloy Co. of Scottdale, Pa., announces appointment of **J. B. Dear** as assistant sales manager. Mr. Dear has been with the company for many years in the factory sales office.

—o—

Del S. Harder, vice president and director of manufacturing, Ford Motor Co., Dearborn, Mich., will supervise purchasing operations, succeeding the late **A. J. Browning. Carl F. Unruh** has been named general purchasing agent for Ford, having been active in this field since 1927, and

associated with the company since 1916. **Herbert H. Foster,** connected with Ford since 1922, and for many years with the Purchasing Division, has been appointed general purchasing agent for the Lincoln-Mercury Division.

—o—

George F. Lynn has been appointed manager in charge of American Shipbuilding Co.'s Buffalo shipyards. He has been office manager. **A. Nelson Fountain,** superintendent at Buffalo, has been transferred to Toledo, O., as superintendent of the company's yards.

—o—

John W. Brown has been appointed general sales manager, National Gypsum Co., Buffalo. **James J. Ryan** has been named to the recently-created position of general commodity manager.

—o—

George Olmsted, insurance executive, has been elected a director of Bell Aircraft Corp., Wheatfield, N. Y.

—o—

Iroquois Steel & Iron Co., Chicago, has announced the appointment of **George Karol** as manager of its brokerage department. Mr. Karol was formerly associated with Alter Co.,

RALPH J. HESS

Davenport, Iowa, in the same capacity.

—o—

Ralph J. Hess has been promoted to general superintendent, Steel Improvement & Forge Co., Cleveland. He will be in charge of all production operations of the company. Mr. Hess joined Steel Improvement in 1940, and was production manager prior to his promotion.

—o—

Frank H. Bonnet has been appointed president and general manager, Buckeye Steel Casting Co., Columbus, O. He succeeds **George T. Johnson,** resigned.

—o—

Elliott Co., Jeannette, Pa., announces the assignment of the following graduate engineers to district offices, upon their completion of a one-year training course: **F. C. Hohenstein,** Chicago; **M. C. Seeman,** Cleveland; **G. J. Greaney Jr.,** Houston; **J. U. Kauffman,** St. Louis; **R. L. Henry,** Tulsa; and **W. W. Gotherman,** Washington.

—o—

Raymond G. Schiele has been appointed buyer for the Resin and Insulation Materials Division, General Electric Co., Schenectady, N. Y. He was formerly buyer in the purchasing department of the company's general office. **George P. Lehmann** has been appointed to the personal staff of **Dr. Zay Jeffries,** vice president of General Electric, and will be succeeded as manager of the company's Plastics Division by **Robert L. Gibson.**

—o—

Dr. Gustav Egloff, Universal Oil Products Co., Chicago, has been re-elected president, Chicago Technical Societies Council.

OBITUARIES . . .

J. Halsey McKown, retired assistant vice president of sales, U. S. Steel Corp. of Delaware, died July 10 at his home, Sewickley, Pa. He retired Jan. 1, 1947, after 41 years' service in the steel industry. His business career started with Carnegie Steel Co. in 1905, and in 1910 was named chief clerk for Carnegie at St. Louis. After service in World War I he was named assistant sales manager at Detroit for Carnegie. Mr. McKown returned to Pittsburgh in 1932, and in 1935 was made assistant vice president and general manager of sales for Carnegie-Illinois. In 1938 he was named assistant vice president, sales, for U. S. Steel Corp.

—o—

Donald G. Noakes, 48, sales manager, Chicago Manufacturing Division, Revere Copper & Brass Inc., Chicago, died July 10 in New Britain, Conn. Associated with the company more than 20 years, he had been located in the New York area until transferred to Chicago last year.

—o—

Lawford H. Fry, 75, mechanical engineer and specialist in locomotive boiler designs, died July 10 at Mt. Vernon, N. Y. He retired 10 days ago as director of research, Steam Locomotive Institute Inc., New York, a position he held since 1943. He was formerly associated with Edgewater Steel Co., at Oakmont, Pa., and for many years prior to that was a metallurgical engineer for Standard Steel Works, Burnham, Pa.

—o—

Jacob D. Lewis, 61, electrical engineer and inventor for Otis Elevator Co., New York, died in Yonkers, N. Y., July 9.

—o—

Lawrence B. Jackson, 63, died July 4 while in Schenectady, N. Y., on leave from his duties as head of the Diesel Division, American Locomotive Co. Mr. Jackson was formerly manager of engineering in Fairbanks, Morse & Co. plant at Beloit, Wis., and had been associated with that company since 1925.

—o—

John Allison, chief engineer, Pittsburgh Steel Foundry Corp., at Glassport, Pa., died July 8 at his home in Swissvale, Pa. He had been with the corporation 42 years.

—o—

Dr. Clarence W. Balke, 68, internationally-known metallurgist, for over 30 years associated with Fansteel Metallurgical Corp., North Chicago, Ill., died July 8 in Highland Park, Ill. He was probably best known for his work in making possible the commercial production and use of tantalum and its sister element, columbium. Dr. Balke was research director of the Fansteel company from 1916 until 1946, at which time he retired, but continued as a consultant. A leader in metal and ore research, he held more than 30 patents.

—o—

John J. Hursh, 58, assistant manager, commercial research and industrial development department, Bethlehem Steel Co., Bethlehem, Pa., died July 8. He had been with Bethlehem since 1912.

—o—

Harry Diamond, 48, chief of Electronics Division, National Bureau of Standards, died recently at his Washington home.

—o—

Albert G. Bladholm, 43, president, Iron & Steel Products Inc., Chicago, died July 6 in that city. He had been associated with the company since its organization in 1930, serving as secretary until 1942 when he succeeded the late Frank Parker as president.

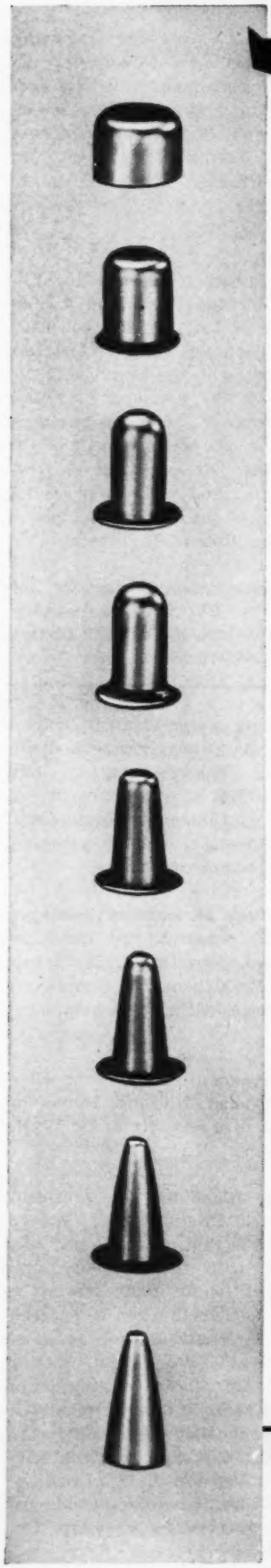
—o—

Carl A. Krause, 64, secretary-treasurer, Stephens-Adamson Mfg. Co., Aurora, Ill., died July 6 in that city.

—o—

J. T. Conder, commercial director, American Electric Fusion Corp., Chicago, died recently.

Blanking...Cupping...or Drawing



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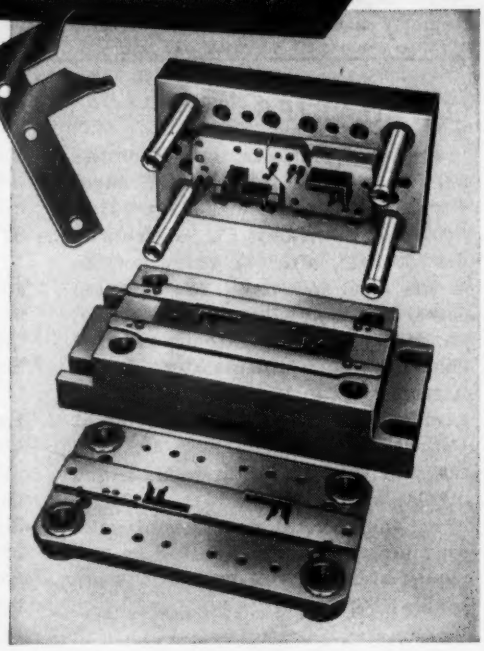
In a second run, using stainless steel (18-8) .010 thick, 125,000 points have been drawn to date with no measurable effect on the Carboloy dies.

Two factors were responsible for the use of Carboloy in this operation: *no scratches could be tolerated* on the finished points, and a long run without polishing of the dies was desired.

OR COMPLEX



2,200,000 strokes were made on this die for blanking electric motor laminations, *on the first sharpening.* Steel dies averaged only 100,000 on each sharpening.

Whether you need simple Carboloy dies that you can make in your own shop or purchase from Carboloy, or complex dies like this Carboloy motor-lamination die available through many professional die shops, you will find that Carboloy gives you longer runs, better finishes, closer tolerances and lower costs.

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Engineering News . . . AT A GLANCE

"STRETCHED" MAGNESIUM— In applying the fuselage skin to the new Douglas-built Navy D-558-2 Skyrocket, distinguished by its needle-pointed nose, magnesium's structural strength and rigidity were far more important than weight saving, Dow Chemical Co., Midland, Mich., reports. To obtain needed stiffness, extensive use was made of the stretch forming technique for magnesium in which the preheated sheet was formed to desired contours by stretching it over a heated die. The method is said to be so satisfactory that it is believed to be practical for production applications.

TECHNOCRACY A LA SHIRT-TAIL—A misplaced woolen shirt and a coffee substitute are largely responsible for the gleaming, rustproof finish on many household tools and redio parts, Marvin J. Udy, told members of the Western New York section of the American Chemical Society recently. In describing early experiments, the Niagara Falls chemical and metallurgical consultant recalled that one of several test plating tanks gave an exceptionally bright luster to the cadmium with which radio chassis, nuts, bolts, hammers and other articles are frequently coated, and that a workman's shirt was taken from the tank in a plant cleanup. When the shirt was removed, the tank no longer produced bright plating. As result of the shirt episode, a series of tests were made in which many different materials were tried including Postum. And, believe it or not, he pointed out, Postum proved the most effective material that could be added to the plating bath. Today Postum still forms the base for one of several brightening agents now in use.

SKILL COMBINED WITH CASTING— To produce castings weighing up to 60 tons—required in the manufacture of large diameter paper driers—the Germans not only used special foundry facilities, but also extreme skill in building the form in a special pit, to prepare the core and position it in perfect concentricity with the outside form. According to the Office of Technical Services, Washington, the casting remains in the form 2 days before it is removed to insure uniform cooling and elimination of possible stresses. After a preliminary cleaning of the inner and outer surfaces, the filler head is cut off and both surfaces are machined to obtain uniform wall thickness and even heat radiation. Following mounting of the shell on the dryer heads, another cut is taken across the outer surface after which grinding and polishing may continue for several weeks before the surface is pronounced acceptable.

NEW GAS-MAKING PROCESS— Both gas utilities and industrial plants stand to benefit from a new gas-making process developed recently by Surface Combustion Corp., Toledo, O. It is reported a new approach to the solution of the peak-load problem. Principal item of the process is a catalytic cracking furnace that breaks down a hydrocarbon vapor into a fixed gas. According to the company, space required for the furnace is small. It can be installed conveniently alongside a boiler house. In addition, no storage holders are required for finished gas. The vaporized hydrocarbon is passed through the plant, gassified under slight pressure and, after cold-enrichment, flows directly into the low pressure distribution line. Higher pressures are obtained by feeding the gas directly into a compressor. By suitable controls, entire plant can be made to float on the line, automatically increasing or decreasing production with the fluctuation in demand.

MICROSCOPIC ASSIGNMENT—Important factor in setting up the surface finish specifications formulated by both General Motors and Chrysler was development of a machine capable of ruling grooves in a polished specimen up to 10,000 lines per inch while holding the pitch accurate to plus or minus 2 per cent. The machine handles the specimen on a table that reciprocates back and forth under a diamond stylus mounted in an arm that "presses" the stylus with a known degree of pressure, for every other stroke of the table. An indexing setup also enables the density of the scribed lines to be varied anywhere from 250 to 10,000 per inch. (p. 90)

NO LOST MOTIONS—Materials handling and other motions are kept to a minimum in Lincoln Electric's plant under a setup that enables one operator to handle several closely allied operations. Instead of processing work through departments, the Cleveland firm uses a straight-line production technique that enables it to handle even small job lots efficiently. In the production of a bracket ring, for example, one operator performs the grinding, flattening and punching operations. The grinding is done first followed by the other two operations which are performed simultaneously. While a 150-ton press is put to work flattening the rings the operator punches the required bolt holes. (p. 94)

FORGING PRESS VS. MACHINE— Main difference between a forging press and a forging machine is that the former operates in the vertical position while the latter operates in the horizontal position, it is pointed out by Waldemar Naujoks. Furthermore, the forging press makes use of a solid stationary die with the punch moving downward to force the plastic metal into the die cavity, while the forging machine employs a split die that grips the stock after which the punch pushes against the plastic metal to move it into the die cavity. Actually, however, work performed by the forging press may be divided into two general groups—extrusion forging in connection with nonferrous metals, and impression die forgings in steel, a "shaping" operation similar to drop forging. (p. 99)

HIGH PRECISION

Surface Finish S

TO BE OFFERED METAL PR

By CLAYTON R. LEWIS
Staff Engineer, Chrysler Corp.
and
ARTHUR F. UNDERWOOD
Head of Mechanical Engineering Dept.
General Motors Research Laboratories
Det oit

DEVELOPMENT of surface finish specifications for metals, embodying a high degree of precision, for inclusion in engineering standards of General Motors Corp. and Chrysler Corp. has been a project on which engineers of the two motor companies have been working for the past 2 years. It is now nearing culmination and the specifications shortly will be made available to all industry.

Basically, the problem revolved around the production of a master set of standard surface finish specimens, from which exact replicas could be made. Inherent inconsistencies of surfaces created by conventional grinding, machining, lapping or honing methods made it necessary to turn to other means of producing accurate master specimens. The almost infinite variety of surfaces makes it obviously impossible to reproduce all characteristic finishes in a limited number of sample blocks. In the final analysis, the roughness reading obtained from a given operation is the only criterion for acceptance. It was finally decided to make the master specimens by ruling a geometric pattern on flat, polished gold plates with a diamond stylus.

New Machine Developed. No available equipment could handle such a microscopic ruling assignment, so it was necessary to develop a fine-line ruling machine which would rule grooves in a polished specimen up to 10,000 lines per inch while holding the pitch

h Standard

Problem of making a master set of standard surface finish specimens solved after 2 years' study by GM and Chrysler engineers. Newly designed fine-line ruling machine will rule grooves in a polished specimen up to 10,000 lines per inch while holding pitch accurate to plus or minus 2 per cent

AL PROCESSING INDUSTRY

accurate to plus or minus 2 per cent. General Motors Research Laboratories perfected such a machine, Fig. 2, which is now in successful operation. The specimen is mounted on a table which reciprocates back and forth under the diamond stylus, mounted in an arm which is controlled through cams to lower onto the specimen, with a known degree of pressure, for every other stroke of the table. Variations in depth of scratch of course are obtained by varying the pressure of the tool on the surface, accomplished by adding or removing small weights.

Indexing of the tool arm for scribing succeeding lines is done by means of a carefully machined lead screw having 20 threads per inch, working in conjunction with a gear or ratchet wheel, precision cut with 500 teeth. This permits varying the density of the scribed lines anywhere from 250 to 10,000 per inch. Only the table is floated on oil, to give smooth cutting. The entire machine is suitably mounted to minimize vibration.

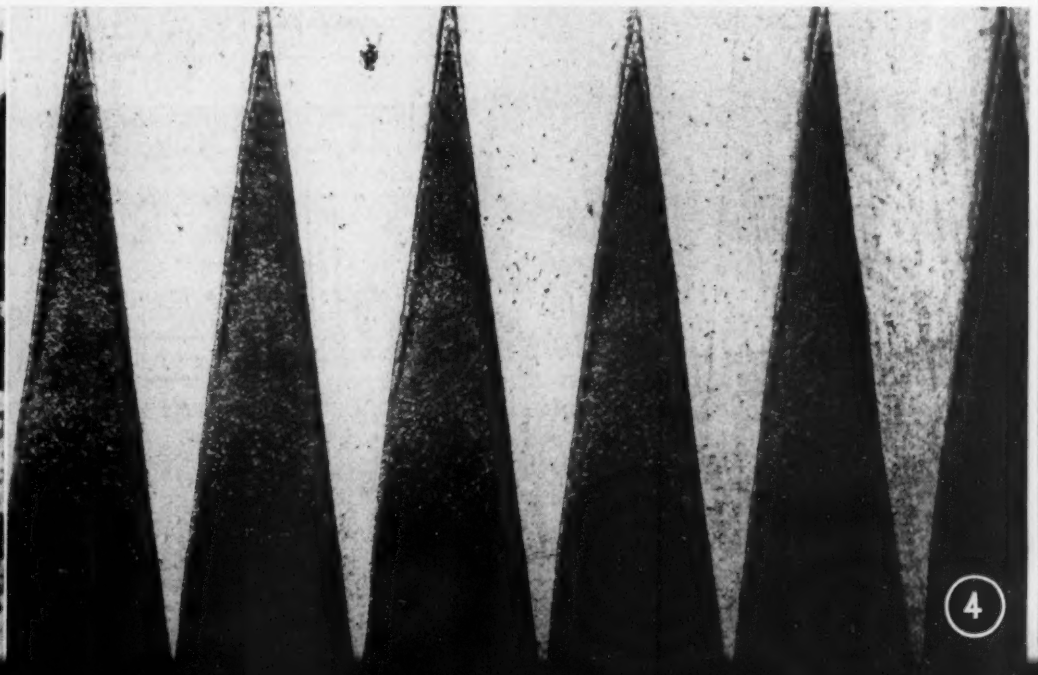
The ruled master samples are calibrated by the engineering staff of Chrysler Corp. and thus involves taper sectioning the scribed specimen across the lay of the rulings to amplify their contour by 25 times for easier measurement, Figs. 3 and 4. This follows a technique developed by H. R. Nelson of Battelle Memorial Institute, Columbus, O., and is reported to be accurate to a fraction of a per cent on coarse rulings and to approximately 5 per cent on extremely fine rulings. Work done to date suggests a variation between individual rulings with a probable error averaging 3 per cent. Calibration of the standard specimens will be repeated on the final generation of replicas as an additional check and safeguard. Engineers state the final replicas, eventually to be furnished the trade, can be guaran-

Fig. 1—Pocket-size metal case accommodating 27 prepared specimens with roughness values from 1 to 1000 microinches. Specimens are removable to permit instrument comparison with production metal surfaces

Fig. 2—Fine-line ruling machine developed by General Motors research laboratories capable of scribing up to 10,000 parallel lines per inch on gold master specimen

Fig. 3—Taper section of ground specimen, 148 microinches average peak to valley height. Horizontal magnification X500, vertical X12,500

Fig. 4—Taper section of geometrically ruled specimen, 160 microinches average peak to valley height. Horizontal magnification X500, vertical X12,500



teed to have errors as low as 3 per cent in coarse finishes and not over 10 per cent in fine finishes.

Unusual Method—Method of making the replicas is unusual, involving a technique known as electroforming and carried out by U. S. Rubber Co. The original scribed gold master is plated by the Ecco process with about 0.001 to 0.002-inch nickel and backed with 3/16-inch of electrolytic iron. The plating is then stripped from the master specimen by mechanical means. Succeeding generations of replicas are made similarly, each from the immediately preceding specimen. Finally the nickel surface of the replica to be used is given a flash plating of rhodium. As calibration is to be done on the sixth generation replicas, considerable plating time naturally has been involved. After the masters were calibrated, their first reproductions were mounted in a jig fixture and production plating began on the next generation of replicas. This phase of the work requires several months at best.

While the primary purpose of the work being done by Chrysler and G. M. is to supply their own shops and engineering departments with an accurate set of surface finish specimens, as soon as their requirements have been met, the specimen sets will be placed on the market at a cost involving only the expense of producing the electroformed replicas, and not any of the research cost underwritten by the two motor companies.

The specimens will be housed in a thin pocket-size metal case, as shown in Fig. 1. They will be removable from case in groups of three or four roughness specimens to facilitate instrument comparison with production surfaces and from the latter standard shop specimens can be established. Individual patch or plate size is ¾ x 1½ inches. Twenty-seven roughness values are provided in graduated increment from one microinch (μ'') to 1000 microinches. These values are the average peak-to-valley measurement, as indicated in the diagram, Fig. 5, which shows a greatly magnified representation of stylus penetration in a ruled surface with 150-degree included angle and 0.001-inch pitch. Note radius of the stylus tip is 500 microinches, the peak-to-valley roughness measurement is 130 microinches, with 17 microinches loss of penetration.

Data in accompanying table (p. 124) list various interrelated factors covering the range of the proposed surface finish standard, from 10 to 1000 microinches depth of cut. Roughness values less than 10 microinches ultimately will be calibrated. Pitch, or peak to peak spacing of the rulings has been held between the limits of 200 and 4000 microinches to hold the standard surfaces within the frequency range of the Brush analyzer and the Abbott profilometer. The included angle has been made as wide as was feasible to minimize error introduced by lack of penetration of the diamond stylus. Table shows these losses for the various depths of cut.

Surface Finish Standard—Turning to details of the surface finish standard itself, as incorporated in General Motors' engineering standards manual, the purpose and scope are defined as establishing definite classifications for various degrees of roughness and waviness, and for various types of lay in the geometrical irregularities of surfaces of solid materials. A set of symbols is provided for use on drawings, and in specifications and reports. Ranges for roughness and waviness are divided into a number of steps and the general types of lay are established by type characteristics.

The standard does not define what degree of surface roughness and waviness, or what type of lay, are suitable for any specific purpose; nor does it specify the means by which any degree of such irregularities may be obtained or produced. Furthermore, it is not concerned with the other surface qualities such as luster, appearance, (*Please turn to Page* 124)

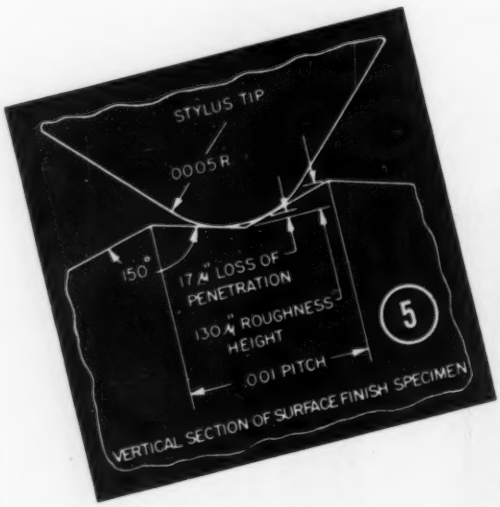


Fig. 5—Diagram of stylus penetration in 150-degree geometrically ruled surface, greatly magnified, of course

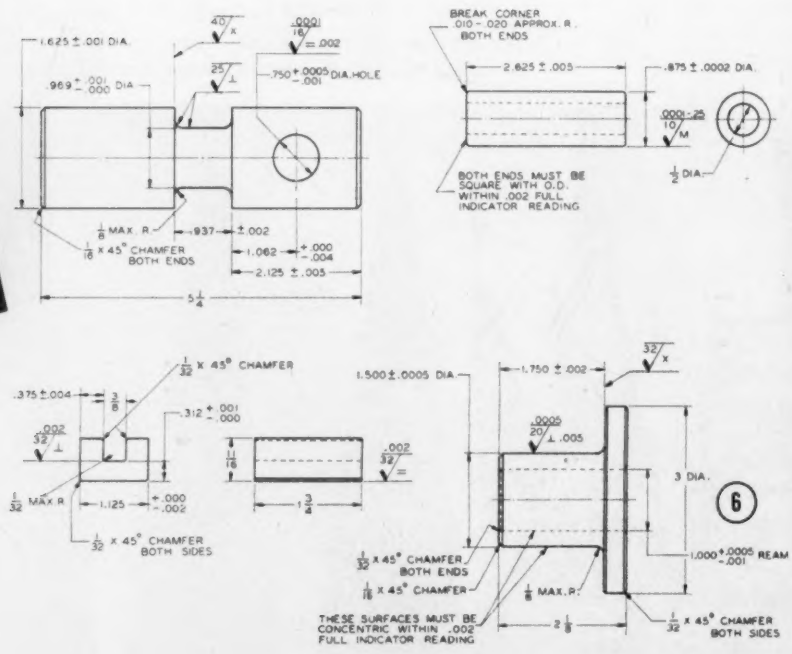


Fig. 6—Parts drawings showing typical applications of symbols and of surface finish specifications

Seen and Heard in the Machinery Field

By GUY HUBBARD
Machine Tool Editor

ABOVE CAYUGA'S WATERS: When I shook the dust of the unpaved main street of Durham, New Hampshire, from my feet in June of 1915, I supposed that my college days were over. I was wrong. Now —33 years later—I find myself back on the campus, this time of Cornell University, after having tried out Dartmouth College as a guest of Uncle Sam during World War I and Sheffield Scientific School on several occasions during the 1920s when the New Haven Machine Tool Shows were in session.

As I write this copy late in the evening of July 12 in Room 31 of Sage Hall of Cornell, my roommate George Pratt, sales manager, Cone Automatic Machine Co., is doing his "homework" at a desk to my right. Below our windows a chorus of machine tool dealers and builders—among whose voices I recognize that of Alvin B. Einig of Motch & Merryweather Machinery Co.—is doing a highly creditable job of reviving such old favorites as "Sweet Adeline". Somewhere on the campus moves the tall form of Tell Berna (Cornell, 1912) in his role of special deputy in charge of "student parking" of cars by members of the Machine Tool Builders' and Dealers' associations.

What brings this class of 60 men of industry to the campus of Cornell? The answer is that the National Machine Tool Builders' Association Sales and Service Committee, and the American Machine Tool Distributors' Association Sales and Service Committee have joined forces with the Sibley School of Mechanical Engineering of Cornell and with representatives of several of the great machine tool using industries, to give the 60 men a two-weeks' "Sales Refresher Course".

This really is one of the most "refreshing" educational experiences that I have had since the days when I studied under the late Forrest E. Cardullo at New Hampshire College back in 1913. Like Professor Cardullo, these teachers at Cornell—including Dean Dexter S. Kimball, Prof. Harry J. Loberg, Dr. A. L. Winsor, and Prof. C. I. Millard—have the happy faculty of talking as men-to-men and giving sound advice.

As one of eight "observers" invited by Tell Berna, in behalf of the associations, to take this two weeks' course, I want to make the following "observation" based on this thoroughly inspiring experience. My "observation" is that here at Cornell has been set a pattern in co-operative adult education which other universities and other industries will do well to follow. Not only that, but I believe that a pattern has been set for "refresher courses" other than in selling —machine tool engineering for example.

In this day and age there is no excuse for ringing down the curtain on college education upon graduation. Bring men of industry back to the campus from time to time. It will prevent academic and industrial stagnation in this great country of ours.

100 YEARS OF SELLERS: A short time ago I stopped over in Rochester and talked over with John W. Ingle of Consolidated Machine Tool Co., the history of William Sellers & Co., now a division of Consolidated. In view of the remarkable story of Sellers, it is highly gratifying that the name and fame—and the products of Sellers—are being perpetuated by Consolidated.

In 1848, William Sellers began to manufacture mill gearing and machine tools at 30th and Chestnut Streets in Philadelphia, where shortly afterward he was joined by Edward Bancroft of Providence, R. I., under the firm name of Bancroft & Sellers. In the beginning, Sellers was the executive and Bancroft the inventor, but following the death of Bancroft, Sellers developed engineering talent which led to his being called "the Whitworth of America".

He did away with all the fancy work on his machine tools; he put lots of metal and lots of power into them; he introduced the now familiar "machine tool gray"; he sponsored the United States system of screw threads; he organized the Edgemoor Iron Co. and put structural fabrication on a manufacturing basis; he reorganized the old William Butcher Steel Works as the Midvale Steel Co., and there financed Frederick Winslow Taylor's 26 years of study in the art of cutting metals.

In 1857 he was joined by his second cousin, Dr. Coleman Sellers, another Philadelphian who had already made a name for himself as a machinery builder in Cincinnati. Besides being an expert on railroad shop tools, Coleman Sellers was a physicist; one of America's earliest photographic experts; a microscopist; a popular professor at Franklin Institute (of which William Sellers served as president in 1864); a leader in development of the electric power of Niagara Falls; and a charter member and president of the American Society of Mechanical Engineers.

It is not strange that two men of the caliber of William and Coleman Sellers left indelible marks on the machine tool industry here in the United States, particularly in the field of heavy equipment. As far back as 1890, William Sellers & Co. designed and built an 8-foot lathe, 128 feet long, for boring and turning 16-inch guns at Naval Gun Factory in Washington.

In my estimation, too few Americans realize the tremendous importance to America in war and in peace of our heavy machine tool industry. It is a very limited industry of which within recent years several notable members have fallen by the wayside. It is not an industry which readily can be augmented for the reason that it requires highly specialized plants, extra large machining and handling equipment, engineering and machine tool building talent.

Consolidated is doing a fine service to our country in "seeing Sellers through" into its second century of machine tool building activity.

STRAIGHT-LINE Production

...utilized for processing small job lots

FABRICATION methods used in the manufacture of exciter-end brackets for direct-current welding sets at the Lincoln Electric Co., Cleveland, take advantage of straight-line production techniques for small job lot productions, which normally is only feasible for high volume production. Savings are made in both direct and indirect costs even though the normal production run of this item is carred in small lots of 200.

The brackets provide the bearing housing for the armature bearing and also the generator housing for the exciting generator which supplies the exciting current for the main-shunt field. Contributing to the overall efficiency of this department is the entire conveyor setup and the many clever tooling ideas applied. Reduction in welding, machining and assembling time is achieved by use of good tooling in basic primary operations. Stock handling in and out of machines and from station to station is reduced, in some cases eliminated altogether. Before conveyorizing the layout, material in each instance was moved by hand-trucking from station to station. In some cases material was moved from one department to another as the plant was previously departmentalized with all welding performed in one department and all machining in another area; all punching and forming in another department, etc. Now a great deal of materials handling is eliminated or reduced.

Inspection cost also reflects a reduction since inspectors today move along the line making spot checks as the work progresses, instead of waiting until the unit is finished, then checking it at a designated inspection bench. In many cases inspection is completely eliminated and the responsibility assumed by the individual operator. Increased operator efficiency has been noted due to the better availability of material with less effort being involved in getting material in and out of machines. Skids normally used for trucking are released for other duty. Stock records previously kept are now eliminated in many instances as parts storage takes place at production stations instead of in a central storeroom. Inventory is controlled visually.

Pay problems also are simplified as the entire line can now be paid in accordance with the production delivered at the end of the line. A year ago this department, which makes shafts, generator frames and other small machine parts in addition to the bracket studied here, had 102 men on the payroll. Due to improved performance with the new layout, 29 of these men have been transferred to other departments while the 73 men remaining on the payroll produce as much as 102 had done previously. In addition to efficiencies previously cited, the conveyorized layout makes it easier to shift men from one job to another, thus affording labor versatility. Setups in many cases are permanent, especially in basic operations. When an operator completes a job at one station he simply moves to the adjacent station.

The bracket concerned with in this article is made up of the following component parts:

A ½ x 1¾-inch mild steel flat which is rolled into a ring with a 20-inch outside diameter; four arms of ½ x 2 x 3-inch mild steel which are cut off and formed; one hub which is press-formed from a ½ x 3 x 12-inch piece of steel then welded automatically; one exciter housing formed from a 11/16-inch plate 9 inches wide.

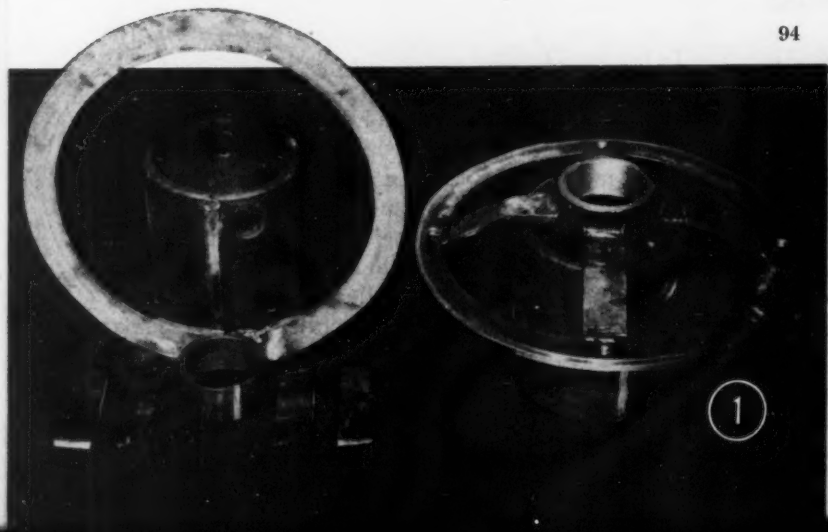
The exciter 11/16-inch plate is first cut off in a Bliss press and subsequently formed in two operations in a Verson 150-ton press and an HPM 500-ton hydraulic press. The die used in the 150-ton

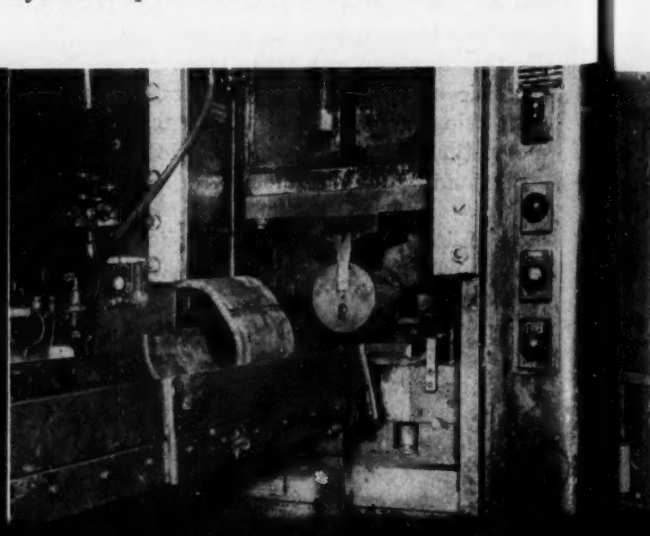
Fig. 1—Component parts and finished bracket

Fig. 2—Two-station die which semi-forms exciter plate in 150-ton Verson press

Fig. 3—Final form of exciter is produced in this 500-ton hydraulic Bliss press

Fig. 4—Basic operations on bracket ring, stock cut-off and forming of ring, are performed in this area





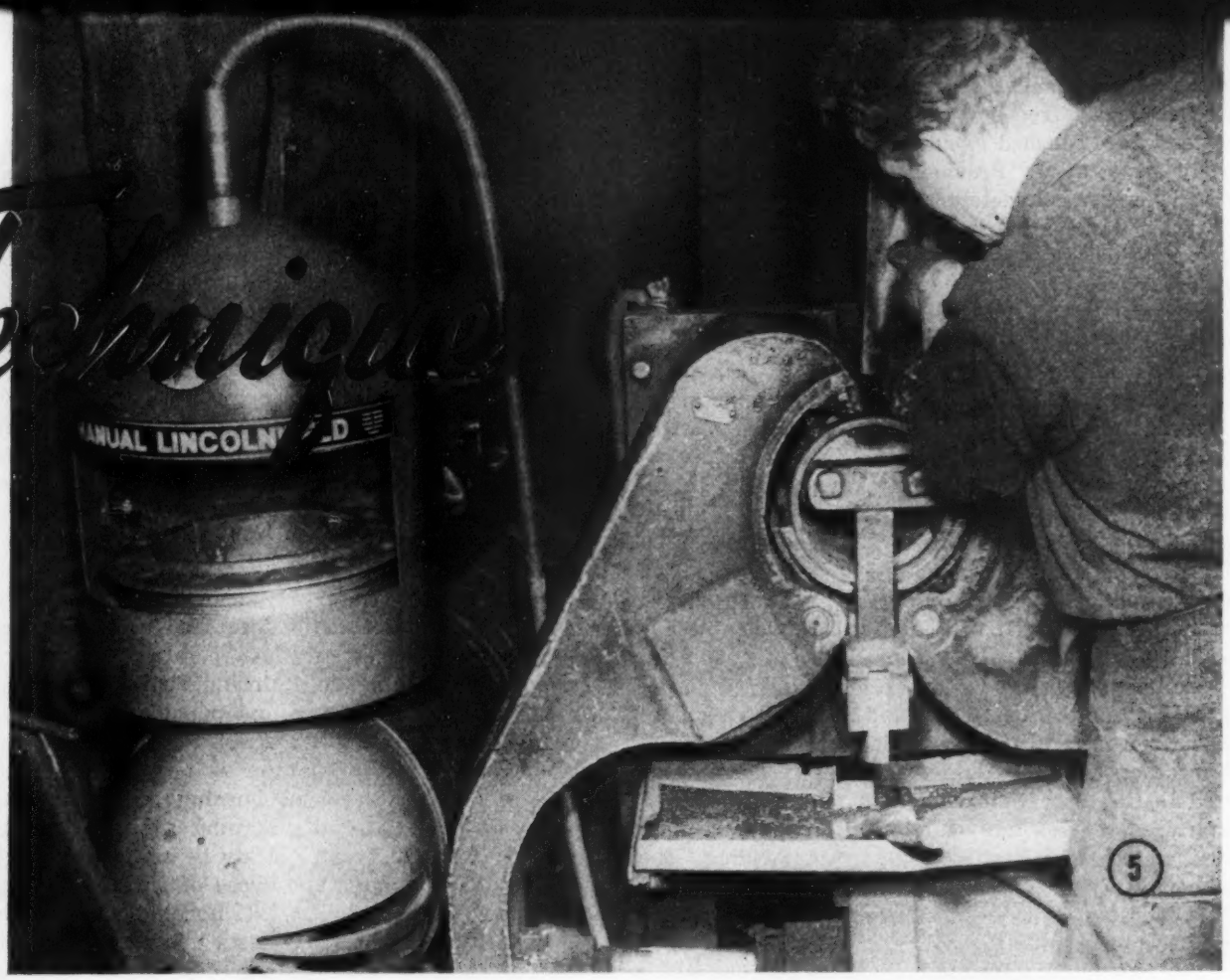
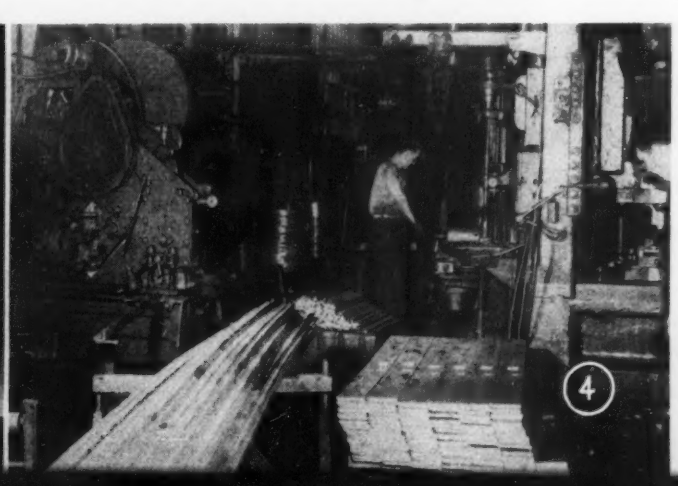


Fig. 5—Hidden-arc welding the exciter housing manually. It is now economical to use this process for low volume production jobs and where welds are irregular

press is a two-station type which produces two pieces per operation. The semiformed piece then rolls down the gravity conveyor to the 500-ton press where the final form is produced. Due to size of the presses their operations could not be integrated into the conveyor line set-up. As a result shells are loaded on skids and trucked to the following operation. Several method changes in forming these shells have been adopted. First, prior to installation of the 500-ton press, shells were heated and subsequently rolled. This was a cumbersome and awkward procedure which necessitated additional labor for re-working defective parts. All following forming operations were performed on the 500-ton press thus necessitating two set-ups and extra materials handling of very bulky pieces. It also utilized a great deal of stock storage area formed shells in making them readily available for subsequent operations. Stock is now stored while still flat and shells, when formed, are processed completely through all basic operations. They are then available for use as exciter housings on any of three brackets as well as welder generator frames for two models of 200-ampere Lincoln welders.

Next operation on the exciter housing is welding by a new process described as manual hidden-arc welding. It is performed with manual Lincolnweld equipment, a self-sufficient portable unit, which provides all necessary current and auxiliary power in addition to a wire-feed mechanism and voltage controls. This 9-inch weld in 11/16-inch plate is made at 400 amperes at a speed of 20-inches per minute.



Made under a blanket of granular inorganic flux, it is consequently free of visible arc rays, smoke and spatter. The finished weld is smooth, dense, and deeply penetrating. Previous weld cleaning operations have been completely eliminated.

Bracket arms are cut off, punch-press formed in one operation and are then sent directly to the storage area.

Bracket ring line starts directly at the raw material stock pile from which material is wheeled to the first machine on dollies. The ½ x 1¾-inch stock is cut off in a 2½ UD Buffalo shear to lengths of approximately 4½ feet varying according to steel quality. Operator who sets up the shear for the correct cut-off length is the same person who forms rings in the Kane & Roach roll placed adjacent to the Buffalo shear. Workman rolls his set-up piece in order to determine the correct cut-off length. Pieces are not cut off square, but at an angle in order to insure that it will be a flush fit when piece is rolled.

Next ring operation is edge rolling in a new model 17AH Kane & Roach which affords a good square joint where the ends of the ring are rolled around to meet each other. Unless enough pressure is exerted in this operation metal will tend to stretch as the rolling begins and ends with a resultant loose joint which necessitates slugging in welding. The same man who runs the shear and the forming roll also operates, whenever necessary, a small drill press located beside the rolling machine. Some rings require two small holes for holding lead blocks which the operator drills while a piece is being rolled. Previously all of these holes were drilled in a separate machine shop set-up which required additional materials handling.

Following rolling, rings are put on a conveyor and moved to a welding booth. Here they are sized in a hydraulic clamping fixture which expands and then clamps the ring to maintain the proper inside and outside diameter as the joint is welded. Another adjacent welding booth is available for handling different ring types and sizes. Each booth has its own individual exhaust outlet to remove all welding fumes. Exhaust fans are of low velocity so that a draft is not produced but creates only a slight movement of air sufficient to keep the smoke in the booth. These rings are welded with ¼-inch Fleetweld No. 5 electrode at 325 amperes. Welding time has been reduced due to better joints achieved with the new rolling machine as the gap to be filled is much smaller.

Next operations are grinding, when necessary, on rings that are not to be machined, flattening, and punching of bolt holes. One operator performs the grinding, flattening and punching. Grinding is done first, then the flattening and punching are handled simultaneously. A 150-ton hydraulic Ohio press flattens the ring while operator is punching four bolt holes with the Cleveland horning press. Both the hydraulic press and the horning press are permanent set-ups which can quickly be adapted for processing different sizes and types of rings, both angle iron and flat edge rolled. The horning press notches as well as punches and has an adapter plate which can be quickly mounted on the permanent base plate for flattening angle iron rings.

Previously each of these operations was performed in a separate department which necessitated material-loading on skids and trucking between departments for each operation. In addition to saving on handling, these permanent set-ups make it possible to efficiently process small lots. Production becomes more flexible and reduces the amount of material inventory in process. As the time interval between stock pile and finished subassembly is short, it is no longer necessary to stock and keep records on a variety of finished parts. They are produced as required.

Hubs which form the bearing housing are cut off and then formed in a punch press using a two-station die. It requires two forms to press the final shape. They are then welded with a Lincolnweld fully automatic unit. A number of these are welded simultaneously, broken apart and then sent to the stock area.

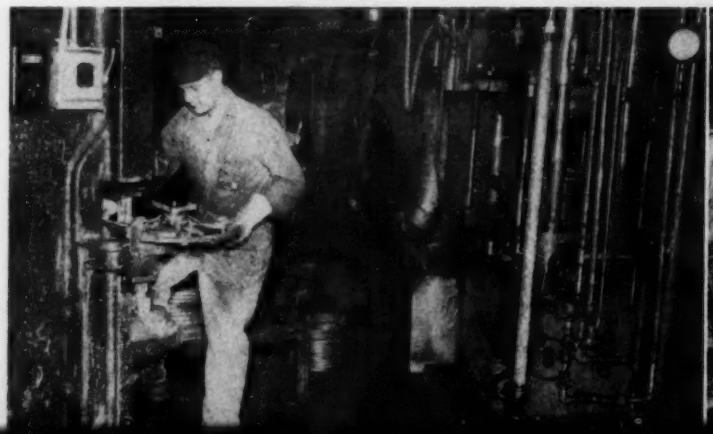
All parts required for the bracket assembly are

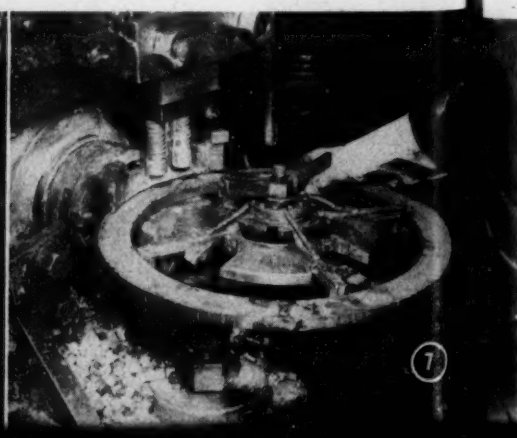
Fig. 6—Operator shown punching bolt holes with Cleveland horning press. This unit and 150-ton hydraulic Ohio press, which flattens the ring, are permanent set-ups which can quickly be adapted for processing different sizes and types of rings, both angle iron and flat edge-rolled

Fig. 7—Close-up view of horning press showing adjustable fixture which locates inside diameter of ring. The four expanding pins can be changed to accommodate smaller ring sizes

Fig. 8—Automatic welding of formed rings used for bracket bearing housing. A number of these are welded simultaneously, broken apart and then sent to the stock area

Fig. 9—Stock area in which all components for bracket assembly are stored





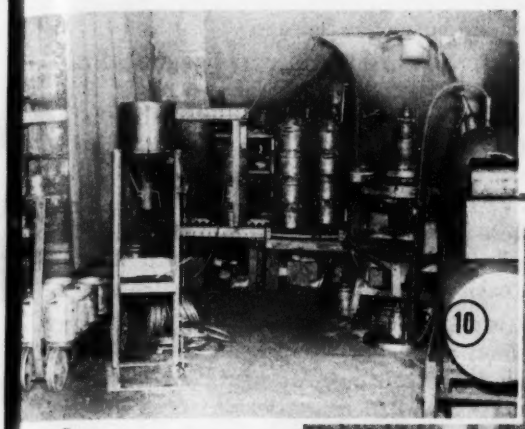
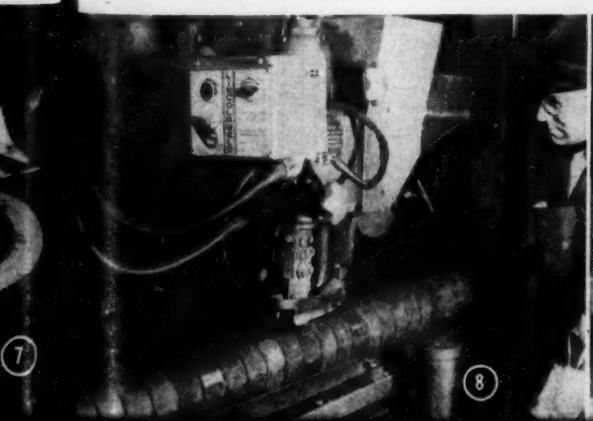


Fig. 11—Close-up view of operator in booth shown in Fig. 10

Fig. 10—Welding booth for bracket assembly. This station, one of six, is set up permanently for assembly and welding of one type bracket

now stored in the stock area shown in Fig. 9. Previously all components were run off in quantity, and placed in a central stockroom from which they were removed as needed. Various sections of this new stock area are marked off with part numbers for the various sections being designated by overhead signs. Inventory control is entirely visual. Parts for storage in this area are produced in the most economical lots as determined according to the cost of set-up, amount of storage area required and the production use. Running down the center of the area is a small conveyor fabricated of angle iron for movement of heavy exciter housings directly from the welding station to the storage area. It continues on through to the welding booths in which brackets are assembled.

Welding booths for bracket assembly are lined along one side of the stock area from which parts are released to the welding station in 200 unit lots. There are six welding stations, each of which is set up permanently for assembly and welding of one type bracket. Fixtures are mounted on positioners in order that brackets can be positioned for all downhand welding performed with ¼-inch Fleetweld No. 7. The operator handles both welding and cleaning operations after which he places the bracket on a gravity conveyor that carries units to the turning lathes. Generally two welding operators man the six stations as they can move from one to the other in order to keep all turning operations amply supplied with material. Previously all welding was done in one department which utilized a centralized exhaust system. Cleaning was also performed in this department but required extra materials handling.



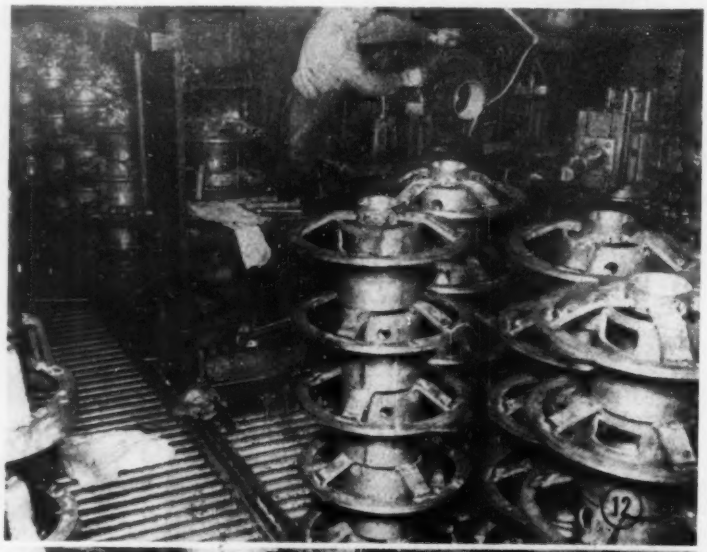
Assembled exciter brackets are next turned in a 6 DRLEX Potter & Johnson automatic turning and chucking lathe. Turned complete in one operation, the machine runs through its complete cycle automatically. After turning the outside diameter of the ring, a female bead is machined for fitting into the male bead machined on the motor stator. The bearing hub is rough bored and faced on both sides with the outside diameter being turned to provide a rocker seat. The exciter housing inside diameter is finished turned and both ends faced.

Next operation is drilling in a radial drill. Brackets are handled to the drill via a conveyor. Small holes are drilled and tapped in the sides of the exciter housing through which bolts pass for holding the pole pieces. Small holes are drilled and tapped at the end of the exciter housing for securing brush holders. These operations are now combined whereas previously drilling and tapping were two separate operations, each requiring handling.

Brackets are then conveyed to a 47A Heald Borematic for final boring of the bearing hub. They are then given a final painting. All operations performed on this line are paid piece work with each operator guaranteeing his work. Operators are furnished with necessary gages and checking tools to help maintain the quality of their work. The inspection department only makes periodic spot-checks along the production line.

Painting of brackets at the end of the line again saves one complete handling as this operation used to be performed in a separate section. Emerging from paint booths, brackets are now ready to move directly to the main assembly line for welders.

The company has made no detailed effort to estimate the overall savings in indirect labor as afforded by this straight-line production set-up. Furthermore, it has not been operating long enough to reflect a true picture of all the savings that may eventually be realized. However, savings as high as 20 per cent have been realized by a reduction of direct labor on some of the brackets that have been produced.



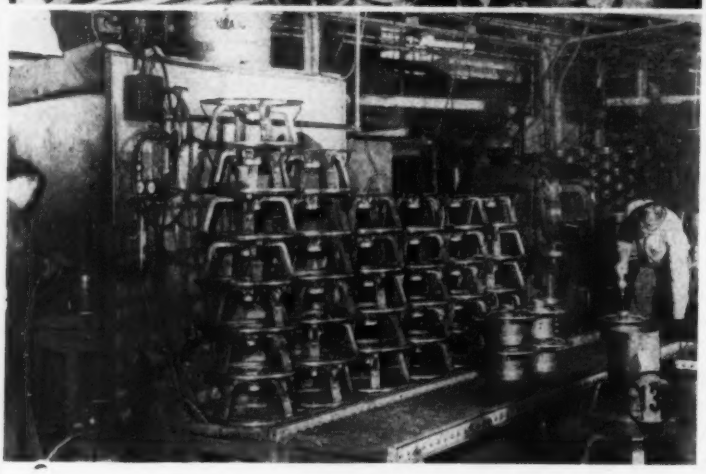
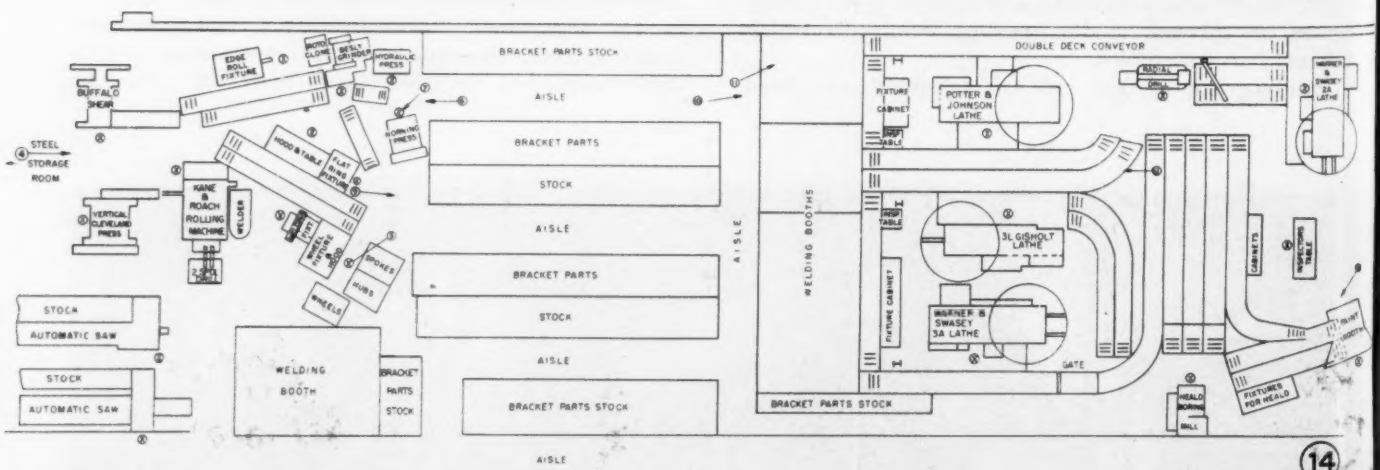


Fig. 12—*Turning assembled exciter in Potter & Johnson automatic turning and chucking lathe, showing conveyor in foreground*

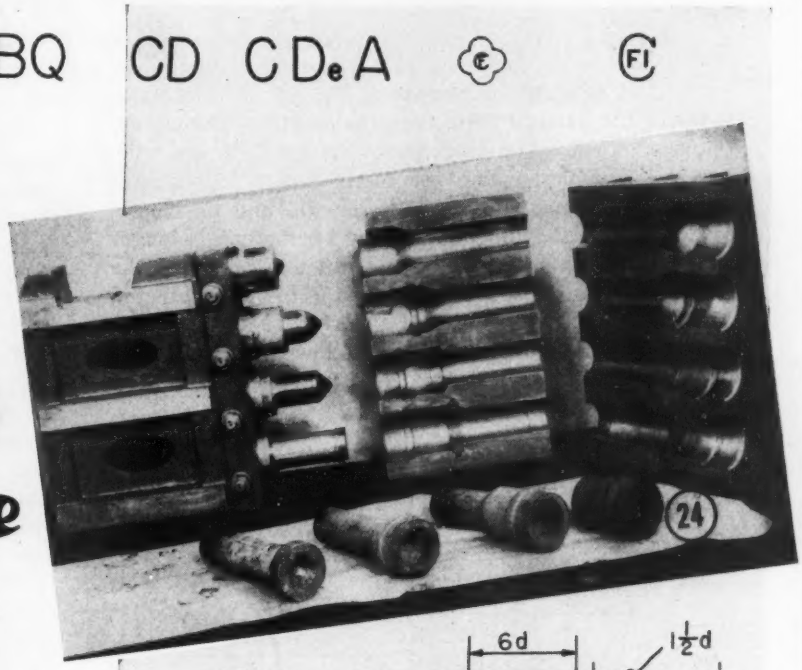
Fig. 13—*Final boring of bearing hub is performed in Heald Boremetic, operator of which is shown performing his own inspection. Painting of brackets at end of line saves one complete materials-handling operation*

Fig. 14—*Layout of exciter-end bracket division. Location at which photographs Nos.* 1, 2, 3 *and* 8 *were taken is not noted as these stations are located outside the area shown on the above drawing*



FUNDAMENTALS OF

Forging Practice



In this fourth part of the series the author describes steps in upsetting and press forging and outlines practical rules regulating the application of these operations

By WALDEMAR NAUJOKS

FORGINGS made in the forging machine, or upsetter, make use of the same basic law of metal flow as those used in making drop forgings. Application of the laws of metal movement for the upsetter forging is to spread the movement in a natural manner, being sure that proper precautions are taken to avoid forging defects.

Dies for the forging machine usually consist of a pair of dies which grip the forging stock tightly and expose the right amount of metal to be shaped or changed to the desired shape. The actual pushing is done by the punch in the header slide. The action in making a forging by the forging machine is to place the round bar stock in the machine against the stationary die. The treadle, or push button, is tripped, setting the machine in operation. Movable die slides against the stationary die so that the forging bar is gripped tightly. The header slide moves forward to push the header punch against the exposed part of the forging stock.

This action moves the exposed forging stock into the die cavity provided in the pair of dies. The punch returns to its original position and the movable die moves into open position. Total amount of work to be done in making a completed forging determines the number of forging steps necessary. Each forging step is called a "pass". As in drop forging work, several steps can be designed in the forging machine dies, and for each pass, one complete cycle of the forging machine is required. Fig. 24 shows a set of forging machine dies and punches, and pieces illustrating forging steps.

Practical laws, or rules, that outline the making of forging machine forgings were first presented in written form by E. R. Frost, National Machinery Co.,

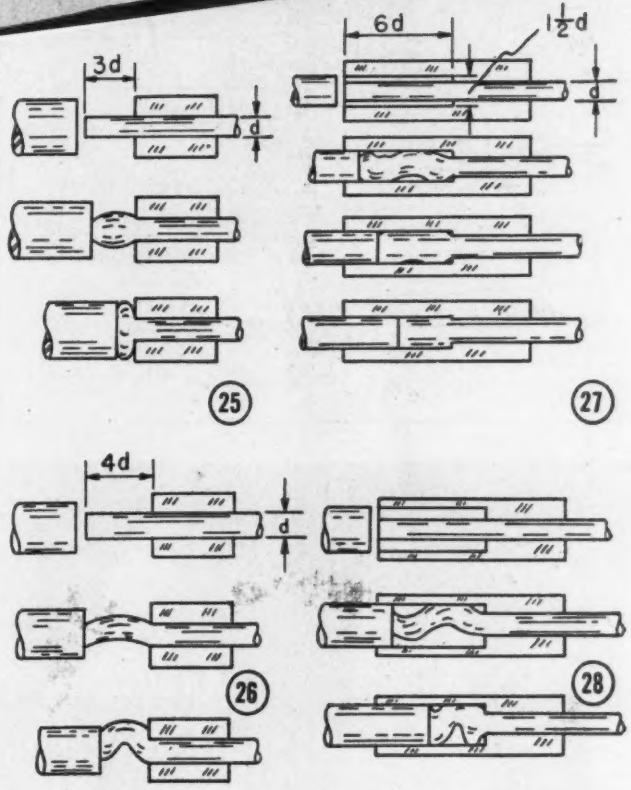
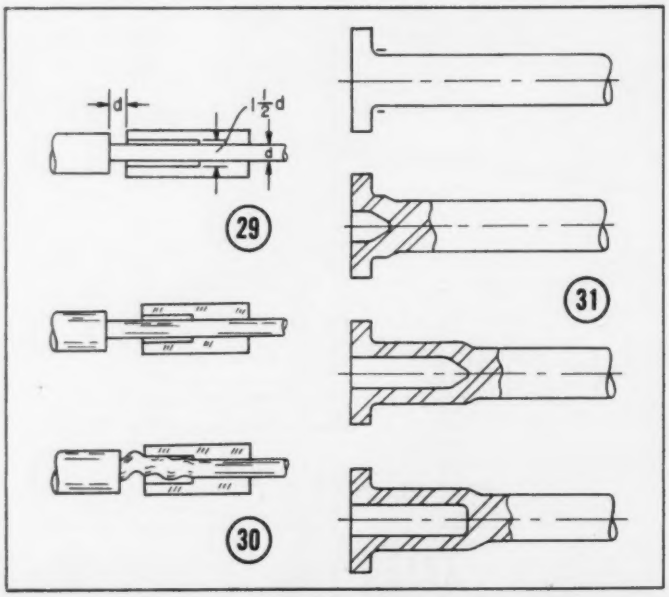


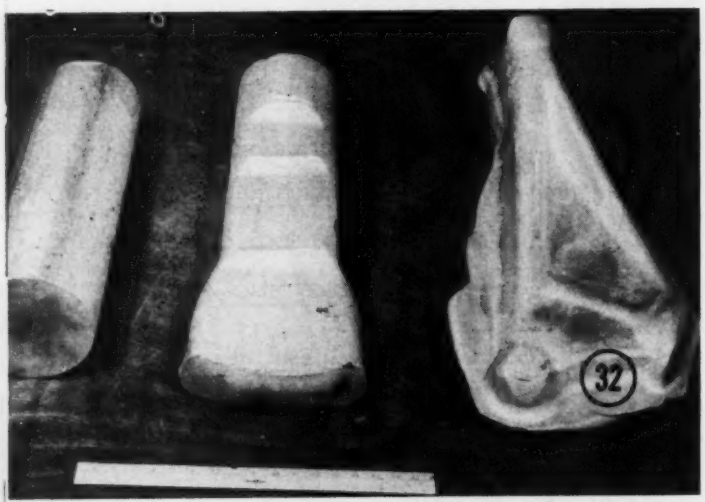
Fig. 24—Set of forging machine dies and punches and pieces illustrating forging steps
Fig. 25—Use of Rule No. 1
Fig. 26—Violation of rule No. 1
Fig. 27—Use of rule No. 2
Fig. 28—Violation of rule No. 2

at the fourth annual convention of the Drop Forging Institute in 1917. These rules cover the fundamental applications for forging machine operations and they are the basis of making forgings by the forging machine. They are outlined under three primary rules, given as follows:—

Rule No. 1. "Limit of length of unsupported stock that can be gathered or upset in one blow without injurious buckling, is not more than three times the diameter of the bar."

Use of this rule is shown in Fig. 25. If the diameter of the bar is 1 inch, then the length of the unsupported stock extending past the end of the die, second drawing, cannot be more than 3 inches long without causing the stock to buckle and develop a cold shut in the forging. If the bar length is longer than 3 inches where the bar diameter is 1 inch, the bar bends to cause the cold shut. This is illustrated in Fig. 26. As long as the stock to be upset is unsupported, Rule No. 1 must be followed, and is necessary for sound forging machine practice wherever it applies.





There are times when it becomes necessary to upset a greater length than three times the diameter of the bar, and to do this, a change must be made in the design of the dies. Rule No. 2 is applied where a greater length than three diameters is used.

Rule No. 2. "Lengths of stock more than three times the diameter of the bar can be successfully upset in one blow, provided the diameter of the upset made is not more than one and one-half times the diameter of the bar."

This rule says that if a greater length of bar than three diameters must be upset, a suitable cavity must be provided in the dies, so that the diameter of the stock cannot be increased to more than one and one-half times the size of the original bar stock in one blow. In the statement, it is assumed that the upset being made is in a machine of sufficient size to upset the stock in one blow.

Fig. 27 shows the application of Rule No. 2.

As long as the die cavity is not more than one and one-half times the diameter of the bar being upset, the metal will move into position without injurious buckling.

Any violation of Rule No. 2 will always cause the forging stock to fold, as shown in Fig. 28. Buckling usually starts in the middle, or half way along the unsupported bar, and if the die cavity is too large, the stock can fold against itself to cause the cold shut. If the die cavity is within the rule requirement, it is possible to permit some of the stock to extend beyond the die cavity, but not more than one half of the length must extend beyond the die cavity.

Rule No. 3 is a combination of Nos. 1 and 2 with some additional information.

Rule No. 3. "In an upset requiring more than three diameters of stock in length and in which the diameter of the upset is one and one-half times the diameter of the bar, the amount of unsupported stock beyond the face of the die must not exceed one diameter of the stock."

Use of Rule No. 3 is shown in Fig. 29; the illustration needs no further explanation. Results in violating the rule are shown in Fig. 30. However, if the diameter of the hole in the die is reduced to a size that is less than one and one-half diameters of the bar being upset, the length of unsupported stock extending beyond the face of the die can be increased in length in proportion. For example, if the diameter of the hole in the die is not over one and one-quarter times the diameter of the stock, the amount of stock extending beyond the face of the die may be increased to a length of one and one-half diameters.

As the hole in the die is made smaller in size, the length of stock extending beyond the face of the die can be increased. Finally a point is reached where the hole disappears and the stock is gripped for the

Fig. 29—Use of rule No. 3

Fig. 30—Violation of Rule No. 3

Fig. 31—Forging by displacement method. Forging pass No. 1 upsets flange on end of bar. Pass No. 2 starts piercing to displace metal. Pass No. 3 continues piercing; final pass forges flat bottom

Fig. 32—Steps in press forging

Fig. 33—Steps in making brass press forgings

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full length of the die. Then Rule No. 1 again applies where the amount of unsupported stock can be up to three diameters in length.

Metal in forging machine work is often moved to its desired position by displacement. This is sometimes called the deep piercing process because the metal, in moving outward to form a deep cavity, is first given a small cavity by the punch and then progressively moves the metal outward to form the deep cavity. Fig. 31 shows typical forgings made by the displacement or deep piercing process. Bolts and similar parts are made in one, two, or three pass operations, depending upon the amount of metal that is required for the bolt head.

Forging Press Forgings—The forging press is a machine similar to the horizontal forging machine in that it employs a pushing or squeezing action. The main or essential difference is that the forging press operates in the vertical position while the forging machine, or upsetter, operates in the horizontal position; the forging press uses a solid stationary die with the punch moving downward to force the plastic metal into the die cavity, while the forging machine has a split die which grips the stock after which the punch pushes against the plastic metal to move it into the die cavity. Actually, work performed by the forging press may be divided into two general groups, (1) extrusion type forging in the nonferrous metals such as brasses and bronzes, (2) impression die forging steel, similar to drop forging.

Extrusion type press forgings are made by placing a slug of forging stock (forging brass or forging bronze) in the forging die, after it has been heated to its plastic state. The punch fastened to the ram of the forging press exerts pressure upon the slug. Metal is moved and extruded into the die cavities provided for it. Extrusion of brass and bronze in the forging operations is done without danger of cracking or cold shuts if normal precautions are taken. Figs. 32 and 33 show several types of brass press forgings. These types of extrusion type of brass and bronze press forging can be made in either mechanical, hydraulic or screw type of forging press. Operating principles of various types of forging presses are considered later.

Impression die forgings in steel are made in dies that follow the same rules of metal movement used in making the steps in drop forging dies. The forging press usually moves the plastic metal in larger steps than do the drop forging dies, and as a result, uses fewer steps to finish the forging. In using fewer steps, it is necessary that the forgings produced on the forging press are relatively symmetrical in nature, or that by nesting two or three of them, the metal movement is uniformly outward.

In some cases, one or two of the preparatory steps are performed on hammers and the forging is finished in the forging press. In general, forgings made on the press have the possibility of a lesser amount of draft than do the drop forgings, since in many cases it is possible to design "knockouts" which help to remove the forgings from the dies. Fig. 34 shows typical steps in making a steel press forging.

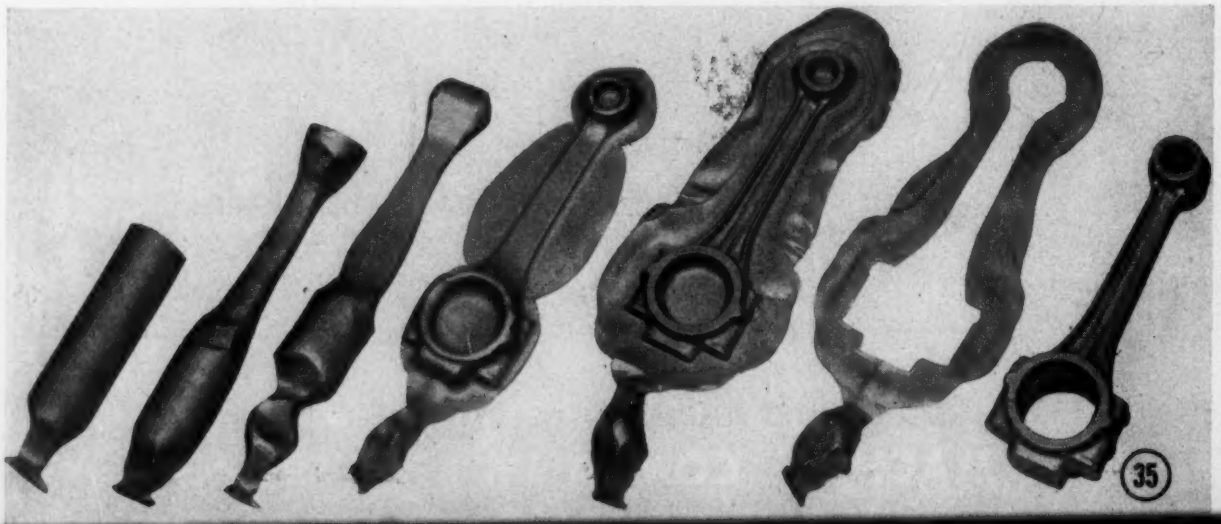
This type of equipment also finds use in sizing forgings to rather close tolerances. After the forging has been made, it is cleaned to remove all forging scale and then reheated to a low temperature just below the point where scale begins to form. It is then placed in the forging press and given a blow which sizes the forging. For sizing to close tolerances, it is important to use a press that has ample capacity to do the job.

Grain Flow—The consideration of metal movement, up to this point, has been to follow the movement of the plastic metal in changing it from a round, flat, or a square bar stock or slug, into the shape of the forging desired. So far, the important consideration has been to move the metal according to the law of metal flow so that no defects were put into the forging, such as a cold shut, lap, or breaks.

Next consideration is (*Please turn to Page* 128)

Fig. 34—Typical steps in making a steel press forging

Fig. 35—Steps in forging a connecting rod blank



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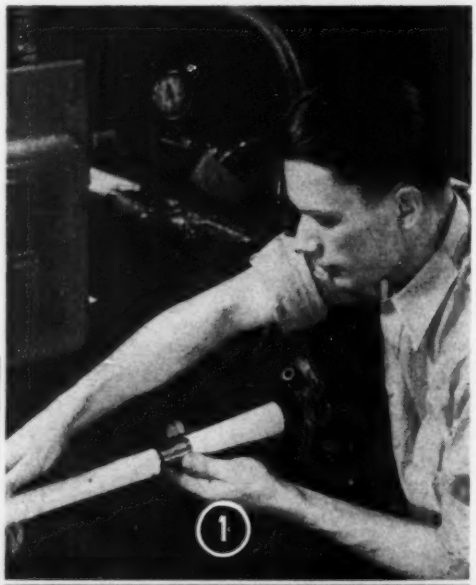

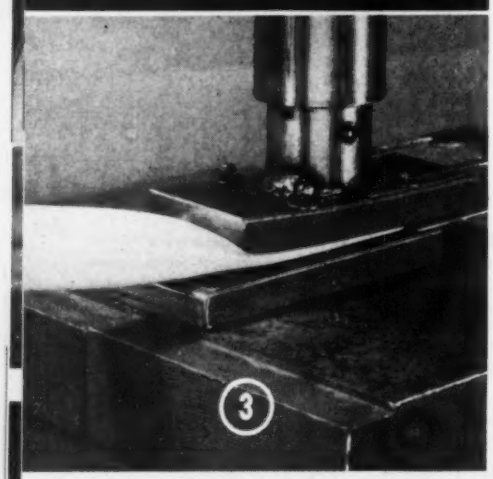

Extrusion Method of

Plastic Finishing Steel Tubing

. . . permits subsequent fabricating operations without injury to the coating

MANUFACTURE of plastic coated steel tubing, used for a variety of purposes in the industrial, transportation, architectural and furniture fields, involves use of a simple, but carefully controlled coating technique first conceived in the latter part of 1942, and since developed into a full production process. A product of Samuel Moore & Co., Mantua, O., the so-called Rub-Bub armored tubing is coated by Carter Products Corp., Cleveland.

The tubing is made, in most cases, by applying a 1/32-inch coating of cellulose acetate butyrate (Tenite II) over steel tubing. This is accomplished by passing straight lengths of bare steel tubing through a cross head extrusion die. The tubing is moving at a speed slightly faster than that at which the plastic is coming out of the die. Since the plastic emerges from the die at a temperature of about 350° F, a shrinkage action caused by the cooling of the plastic, combined with the speed differential of the tubing, pulls the plastic down to the outside diameter of the tubes.

Result is a very strong friction grip of the plastic to the contour of the tubes. Immediately after one complete length has gone through the cross head, and while the plastic is still in a semimolten state, the operator separates the leading tube from the one following. In a matter of a few seconds, the plastic cools sufficiently to permit handling with the bare hand, Fig. 1.

This process is reported suitable for applying different thicknesses and types of plastic coating to various sizes and shapes of tubing and rod made of steel, brass, copper, aluminum, stainless steel and wood. In fact, it is possible to apply the process to any size and shape of tubing or rod adaptable to continuous processing through an extruding cross head.

The plastic is said to provide an excellent decorative, protective and insulative coating for the steel tubing. It can be obtained in a wide variety of colors, any one of which can be varied by adding metallic powders and/or changing translucency, and thereby giving clear dimensional appearance. The plastic is not affected by water, salt air, hand perspiration, mild acids, or alkali; it is insulative, because of the elimination of static or electrical shock up to and over 15,000 volts. Any one of these qualities can be improved to meet specific requirements by changing the plastic and/or the thickness of the coating.

As can be seen in Figs. 2 and 3, the coated tubing may be fabricated by sawing, bending, cutting, drilling, flattening, etc. without injuring or destroying the plastic finish. All of these operations are accomplished by using standard metalworking machinery and standard tooling. The company carries about 250,000 feet of tubing in stock at their plant. This inventory is made up primarily of two sizes of tubing, each of which is carried in seven different colors. The two sizes are 1 3/16-inch outside diameter by 18-gage wall weld seam steel tubing with a 1/32-inch coating of plastic, making a finished outside diameter of 1¼ inches; and a ⅞-inch outside diameter by 18-gage tubing coated with 1/32-inch thick plastic coating, making a finished outside diameter of 15/16 inches.

Principal industrial application to date is for conveyor rollers for which the plastic furnishes a protective coating to withstand acid conditions. In the manufacture of wall board, sheets of wood fiber are passed through an alum water solution and then carried on steel conveyor rollers to an oven. The alum in the water creates a pH condition of about 4½ to 5½; the steel conveyor rollers corrode and eventually it is necessary to cut down the line to replace them. In accelerated laboratory tests, coated rollers withstood this acid condition as well as the scuffing action caused by the wallboard passing over the rollers.

In the transportation field, several bus makers find plastic-coated tubes and rods an ideal medium for offsetting corrosion caused from both hand perspiration and atmospheric conditions.

Fig. 1—Immediately after one complete length of tubing has gone through the cross head, and while the plastic is still in a semimolten state, the operator separates the leading tube from the one following

Fig. 2—Standard bending operation on coated tubing

Fig. 3—Plastic coated tubing can be flattened without injuring or destroying the finish

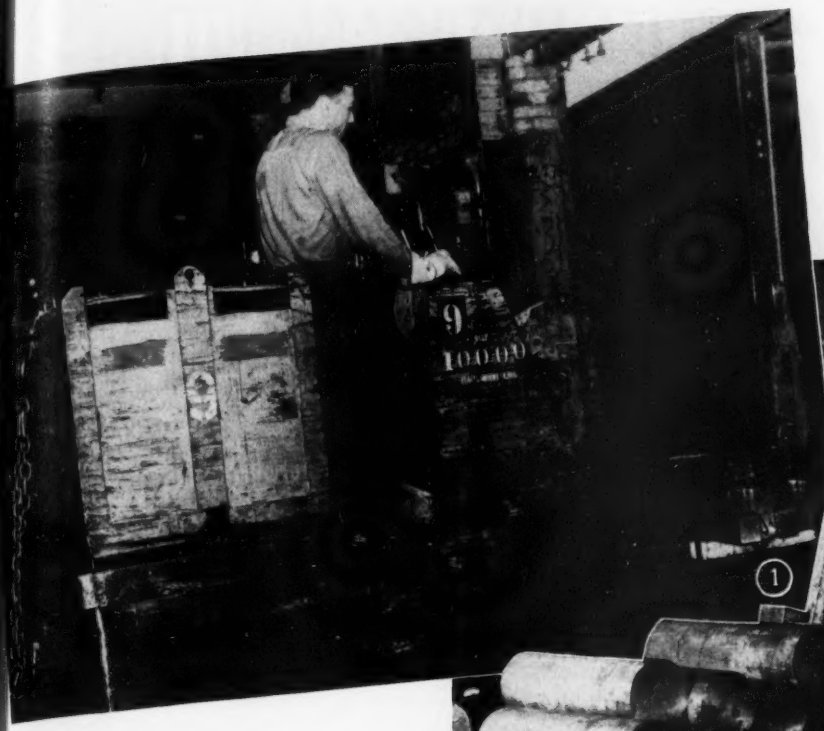

Fig. 1—Fork truck moves 18 steel bars (approximate weight 3600 pounds) strapped to dunnage blocks into freight car

Fig. 2—Sawed billets weighing approximately 440 pounds each being moved to stock pile alongside extrusion press. All photos courtesy Electric Industrial Truck Association

Variety of Plant Trucks ... used to relay work through processing lines

Movement of products through process and handling of supplies co-ordinated by internal transportation department. Variety of equipment used to perform specialized tasks

STARTING with two highlift platform trucks in 1916, Chase Brass & Copper Co., Waterbury, Conn., now operates a fleet of 76 storage battery powered industrial trucks at its metal works plant with 45 additional trucks in daily use at its Waterbury Mfg. Co., plant. These units range from powerful little tractors through the various types to heavy-duty fork trucks capable of lifting 12,000-pound slabs of copper or composition metals to a height of 119 inches.

All transportation and materials handling activities at metal works plant are co-ordinated by its internal transportation department. This department is charged with seeing that raw material is received, stored and supplied in quantity to various production departments contained in plant. In addition, tubes, rods, coils, sheets, slabs and billets of copper, brass and alloyed metals are kept moving through process by means of industrial trucks until they arrive in finished product storage for outward shipment. Handling of supplies and miscellaneous tasks necessary for maintaining production are also performed by these trucks.

Variety of Types—Included in the fleet are: Thirty-three tractors, 13 fixed-platform burden bearing trucks, 9 fork trucks ranging in carrying capacity from 4000 to 15,000 pounds, 6 high-lift platform trucks, 6 powered hand trucks and a battery powered crane truck. Plant practice calls for loading trucks to capacity and in some instances overloads are carried. Work run of load bearing trucks ranges from 50 to 500 feet, and tractors pulling four-wheeled dollies, either singly or in train, have runs up to 2500 feet. Truck access to upper floors is by elevator or ramp with longest ramp having a rise of 41 inches in its 102-foot length.

Recently retired after many years of service, were the two highlift platform trucks originally installed in 1916. During the years 1922-27, several gas-electric trucks were put into operation on tasks similar to those performed by battery powered equipment, but were replaced with storage battery powered equipment as they were not suited to the company's needs.

Factors determining continued addition of battery powered trucks were performance records and low maintenance costs. Operators need only a brief period to become familiar with truck controls, and the company does not have to hire especially skilled labor as operators.

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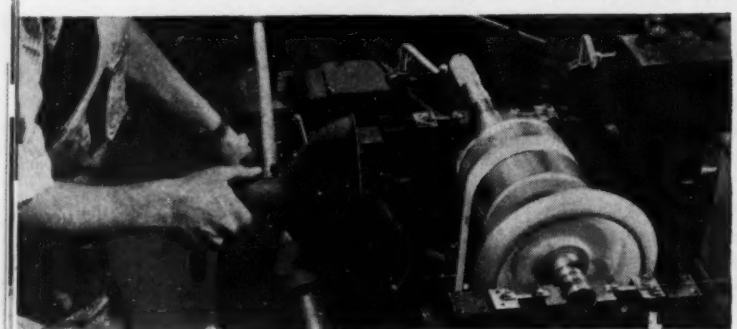

EVERY UNIT BALANCED. *Every* Life-Line rotor—not random samples—is balanced on a Dynetric balancing machine* to insure maximum possible freedom from vibration of every unit.

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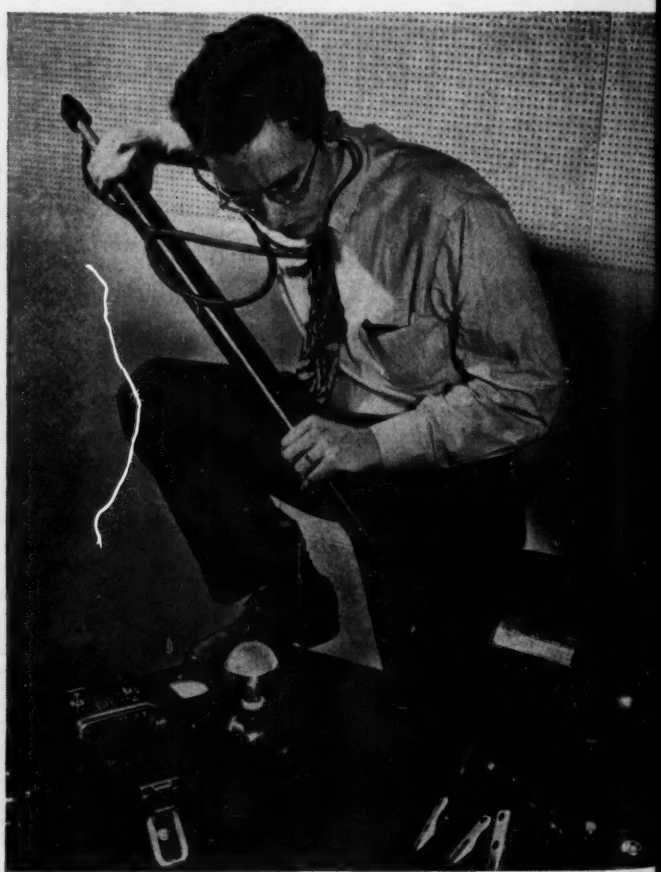


MOTOR "ASTHMA" CHECK. Sounds that shouldn't be there d get by this "noise detective". Audiometer tells noise wave le sound level meter (left) checks decibel rating; sound anal (right) tells the relative amount of different frequencies resul

Life-Line
SMOOTH? HERE'S PROOF! Coin balanced on edge on a Life-Line motor remains undisturbed as motor is started, runs and stops—dramatic evidence of Life-Line's freedom from vibration and resulting noise!

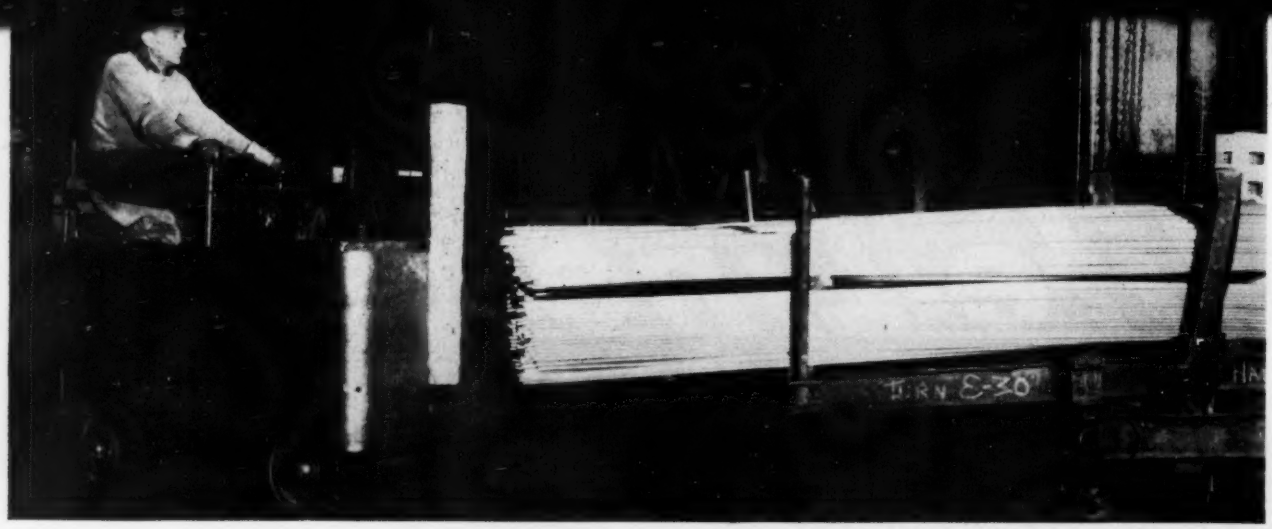


Fig. 3—Load of tubes being moved inter-departmentally by storage battery powered tractor. Wheeled dollie is pushed to destination by tractor which carries a wooden stake at front end to prevent marring of the product

loads and with considerable expenditure of manpower. When battery powered trucks were put to work, many changes were made in rolling stock and in methods of handling. Even after 30 years' experience, the company is constantly changing its methods so as to secure the most efficient use of trucking equipment. With the addition of trucking equipment, there was an immediate spurt in the flow of goods from receipt, through process and into shipment. Larger quantities were handled in one operation with less men, permitting reassignment of labor from manual handling operations to other work.

Operations at the metal works plant are maintained on triple, double and single turns, five days a week. Not all of the battery powered units work round-the-clock, but those that do have batteries changed at beginning of each shift. Other trucks come in for a battery charge at the end of the work trick at the central charging station.

Pallets Used — Both single and double faced pallets are used in the material handling system. Some incoming material is received in palletloads, while other material is palletized at car door and moved into warehouse or process. Some shipments are made on pallets when so requested by customer.

In movement of billets from sawing tables to stock pile alongside extrusion presses, a special plate is attached over fork of smaller capacity fork trucks, Fig. 2. Billets, which weigh approximately 440 pounds each, are carried 8 or 10 to a load and are piled five-high. Rough cast billets, which weigh about 1500 pounds apiece, are transported on burden bearing, fixed platform trucks.

In yard storage of ingot-billets and pig metal a special type combination skid and pallet is used. With the use of this device, billets are tiered in loads four to five high in yard storage.

Slab Stacking—Adjacent to area containing huge gas-fired furnaces and molds in which 1000 pound metal slabs are cast, a 12,000-pound capacity truck is operated for transporting the metal to scalping and trimming machines. The truck tiers 12,000-pound loads of slabs three and four high. Truck and operator perform work which formerly required the services of several men who made use of overhead cranes and grabs. Greater vertical storage saves space, and piles do not have to be located in fixed positions as was the case when overhead cranes were used.

Trucks are serviced weekly by a special maintenance crew. Because of the low maintenance requirements, services of the crew are also available for work on machinery and equipment used throughout the plant.

Identification of Tool Steel Bars Simplified

Tool and die steel bars supplied by Carpenter Steel Co., Reading, Pa., are being painted in distinctive colors for their entire length to give users a quick, positive method of identification. In the past, even though bars were plainly labeled and painted on each end, there were still many cases of lost identity when both ends of the bars were removed.

Further help in selecting and identifying the proper steel will be given to tool and die makers with a tool steel selector and identification chart which is now being prepared for release in the near future. Layout of the chart will be such that the user will be able to select a steel possessing necessary qualities by following arrows which will give progressively the desired characteristics.

Supplements to Book of Standards Published

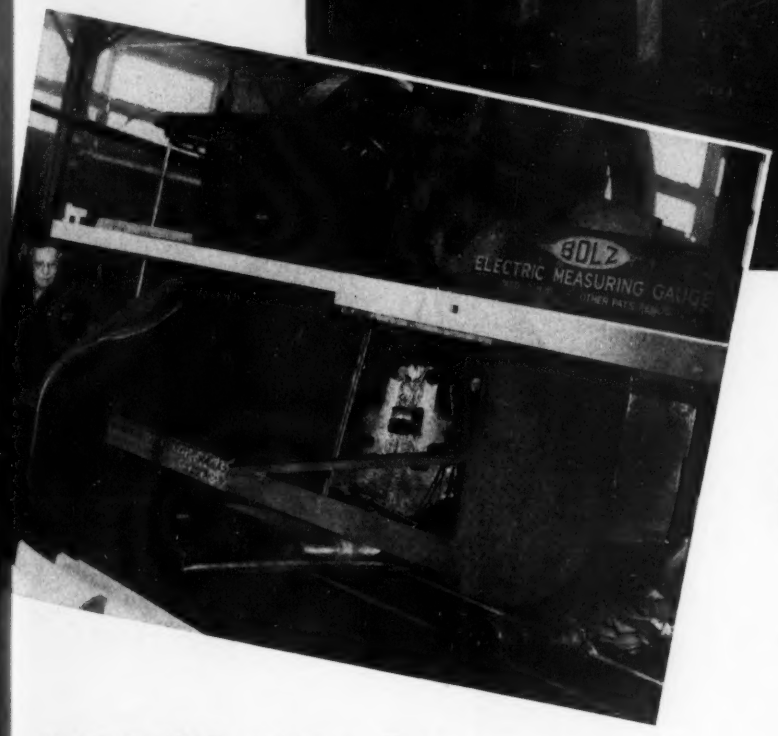
Latest approved form of 330 specifications tests and definitions which were either issued for the first time in 1947 or revised since their appearance in the book of American Society for Testing Materials, Philadelphia, which was published in 1946 are contained in supplements recently issued. These supplements are intended to keep up to date the book which is published triennially.

Part I-A contains 70 standards covering ferrous metals and materials including specifications for boiler steel plate, structural steel, bar steels, spring wire, forgings, axles and the like. Large amount of coverage is given to pipes and tubes, stainless steel, magnetic properties and metallic coatings.

Contained in Part I-B are standards for nonferrous metals including those for ingot and cathode copper, copper and copper alloy wire for electrical conductors, copper and copper alloy products, aluminum and aluminum base alloys, magnesium and magnesium base alloys and metal powders and products. Remaining three sections list specifications for nonmetallic metals that are used in fields of construction, lubrication and plastics.

Fig. 1 (right)—Sawing I-beam to desired length for fabricating. Distance of stop from saw is set by means of controls on front end of overhead track

Fig. 2 (below)—Short lengths can be sheared accurately because of bracket which has been welded to the stop



FASTER *Steel Cutting*

Promoted by Electric Measuring Gage

CONSIDERABLE savings in time with a resultant increase in output are being effected at the steel warehouse of Paterson-Leitch Co., Cleveland, by using an electric measuring gage designed and patented by N. H. Bolz, factory manager. Two installations of the device, on a saw and on a shear, have both proved successful over a period of years and the company will soon begin manufacture of the gage for other warehouses and steel fabricators.

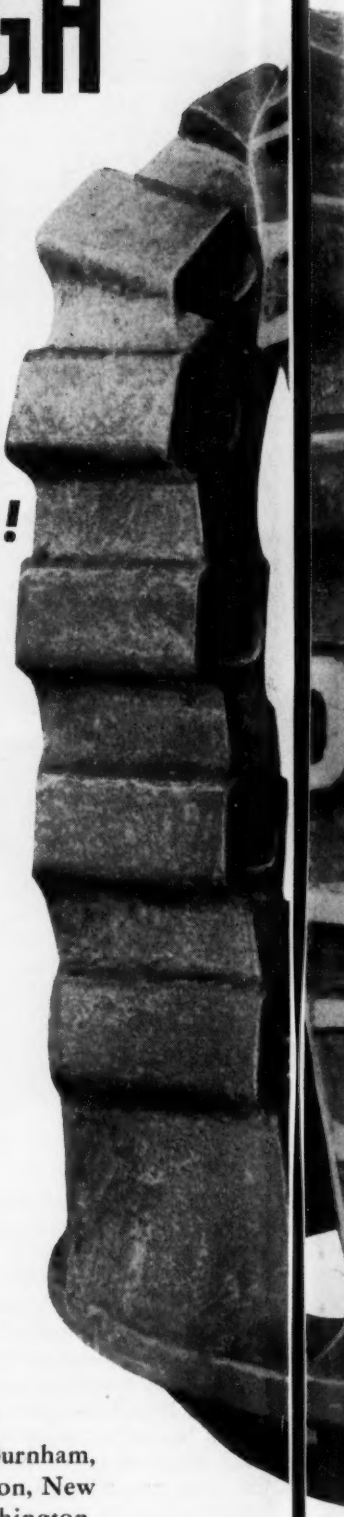
Work on the saw consists of cutting channels, I-beams, bars, rounds, pipe and railroad rails in various lengths as needed for fabrication operations or ordered by customers. In the past the saw operator used to measure lengths with a tape measure, and mark them with a soapstone and center punch. Then the length had to be jockeyed into final position by a helper using a sledge so as to get the mark exactly under the saw blade. Since the gage was installed, the helper is no longer necessary as positioning is immediate and accurate without manual handling.

Operator moves the stop out to the required distance by means of forward and reversing pushbuttons. The stop on the saw has a minimum working range of 18-inches from the saw and a maximum range of 60 feet. It moves in or out at a speed of one foot per second, being powered by a 3 phase alternating current motor on either 220 or 440 volts. A drum indicator gives distance readings that are accurate to 1/32-inch, but for fast operation a counter gives approximate readings since the drum revolves too rapidly to be read. When the counter indicates the approximate distance, the operator can move the stop more slowly and make final gage adjustment accurately using the drum indicator. Piece to be sawed is then moved up against the stop by means of electrically operated rolls and the operator brings the saw down for the cut as shown in illustration, Fig. 1.

Shear operations are similar to those described for the saw. One change that has been made on the shear is that a bracket is welded onto the stop on the gage, Fig. 2, enabling it to work closer to the shear. A flat metal plate welded on the end of the bracket is large enough to provide sufficient backing for all work handled by the shear.

Gages used on the saw and shear are of the original design, but a newer model has been developed which has the gage operating from the side instead of from the top. This method of operation will facilitate loading of large parts from a crane without interference from the track on which the stop operates.

It's BIG and It's TOUGH and it chews rocks



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NOTICE

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Standard Steel Works is equipped to manufacture castings for all types of service, in weights from 5 to 130,000 pounds. Metal comes from our own open hearth furnaces, permitting complete control of quality. Various chemical compositions and heat treatments have been developed here which result in substantial improvement in physical properties. May we quote on your requirements?

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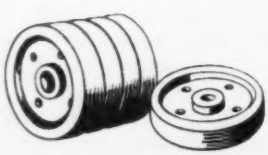
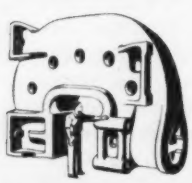


WHEEL MILL PRODUCTS



STEEL CASTINGS

WELDLESS RINGS

FORGINGS

BALDWIN STANDARD STEEL WORKS DIVISION

Fig. 1 — Stockyard view of make-up crane with magnet delivering metal to iron make-up platform. Weigh hopper is below with stone and coke bin at right

By A. W. GREGG
Executive Engineer
Foundry Equipment Dept.
Whiting Corp.
Harvey, Ill.

Utilizing Cupola Metal

...in open hearth charge

Years ago cupolas were used to supply the charge for Bessemer converter plants where supply of blast furnace pig iron was inadequate. Today steel plants have developed an operating technique enabling cupola operation from 72 to 100 hours without dropping bottom

SOME 10 years ago a progressive nonintegrated steel plant in the middle west installed two No. 12 cupolas to supply hot metal as a part of the open-hearth furnace charge. At the present time there are four such installations. None of them use hot blast cupolas which is contrary to expectations.

The serious shortage of pig iron has recently brought this subject to the fore, and there would probably be more similar installations were it not for the equally serious shortages of scrap and coke. However, scrap must be obtained if steel is to be made by any process except the Bessemer converter, and there are some signs of improvment in the coke supply.

Use of cupolas in steel plants is not new. Many years ago they were quite commonly used to supply the charge for Bessemer converter plants, where the supply of pig iron from the blast furnace was inadequate.

In foundry operations, cupolas are seldom operated over 16 hours, but steel plants have developed an operating technique which permits cupolas to be kept in operation from 72 to 100 hours without dropping bottom.

One important feature contributing to longer lining life in steel plant cupolas is the care taken to control the iron-oxide content of the slag. Iron-oxide is very destructive to the silica lining if percentage in the slag exceeds 4 to 4½ per cent. Long

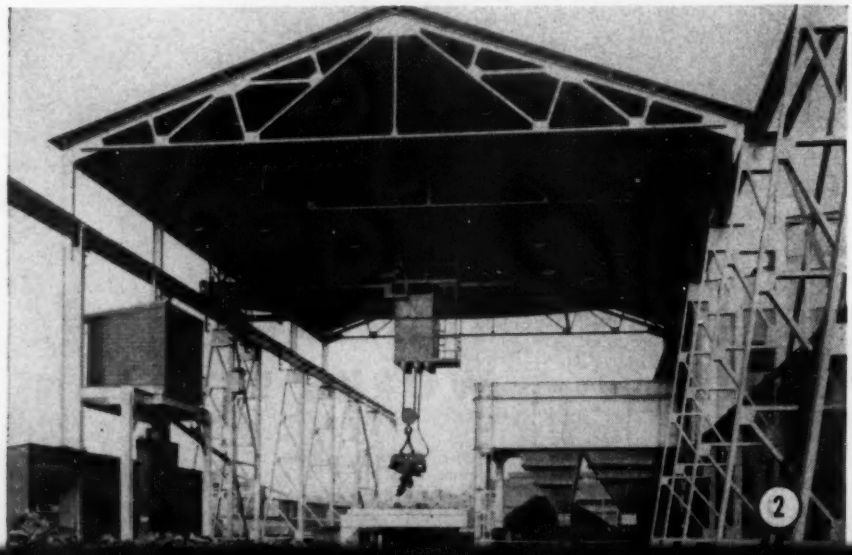


Fig. 2—Typical stock yard scene showing iron loading platform with weigh hopper, and combination coke and stone bin with hoppers. A motorized car for transferring loaded charging buckets to pick-up point under charging crane is used in this set-up

NEW McKEE-DESIGNED ROTARY AIR-COOLER *Improves* SINTER QUALITY

McKEE leadership in the field of ore beneficiation is again demonstrated by the McKee-designed rotary air cooler for sintering plants.

With a 300-ton holding capacity, this new device permits ample time for air-cooling and eliminates shattering and losses from water-quenching of the hot sinter.

The improved physical properties of the sinter when air cooling is applied are directly reflected in the performance of plants where sinter is a principal or important part of the charge materials for either blast furnaces or open hearths.

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life of blast furnace linings is due, at least in part, to the fact that the iron-oxide content of the slag is considerably less than 1 per cent.

A continuous supply of hot metal can be assured by operating two cupolas alternately, the second cupola being charged and ready for the blast when the first is due to go out of service.

A No. 12 cupola having a 108-inch diameter shell and lined to about 72 inches inside diameter can produce 425 to 450 tons of hot metal per day of 24 hours. Some form of water cooling should be used, either water jackets in the lining or an arrangement to spray water on the outside of the shell.

The cupola spout is designed for front slagging and continuous tapping.

Cupola charge usually consists of steel scrap together with cast iron scrap or pig iron, about 75 per cent steel scrap and 25 per cent cast iron or pig iron. However, some cupolas have operated for days using a 100 per cent steel scrap charge. The lower carbon charge is somewhat more destructive to the lining.

Metal at the spout has approximately the following analysis:

Carbon: 2.85 to 3.10

Phosphorus: Content determined by per cent of phosphorus in the charge

Manganese: 0.50 to 0.60

Silicon: Depends on per cent of silicon in charge. Usually about 0.50

Sulphur: About 0.10 to 0.14 at spout

Metal is desulphurized in the ladle (with alkali slags) prior to delivery to the open-hearth furnace. About 50 per cent of the sulphur can be removed with 30 pounds of soda-ash per ton of metal. Metal coke ratios are on the order of 6 or 8 to 1 depending upon the material charged and coke quality. Metal temperatures range from 2700 to 2750° F at the cupola spout.

Some plants are using large ladles as holding furnaces. These are of 75 ton capacity, are covered and have oil or gas burners to reduce radiation loss. Large cradle holding furnaces having a capacity of about 200 tons are also utilized. Metal temperatures as delivered to the open-hearth furnace are about 2500° to 2250° F.

In these days of high and constantly changing prices, it is difficult to make an accurate estimate of the cost to operate a cupola for this type service. However, the following is at least an approximation, which can be used as a guide:

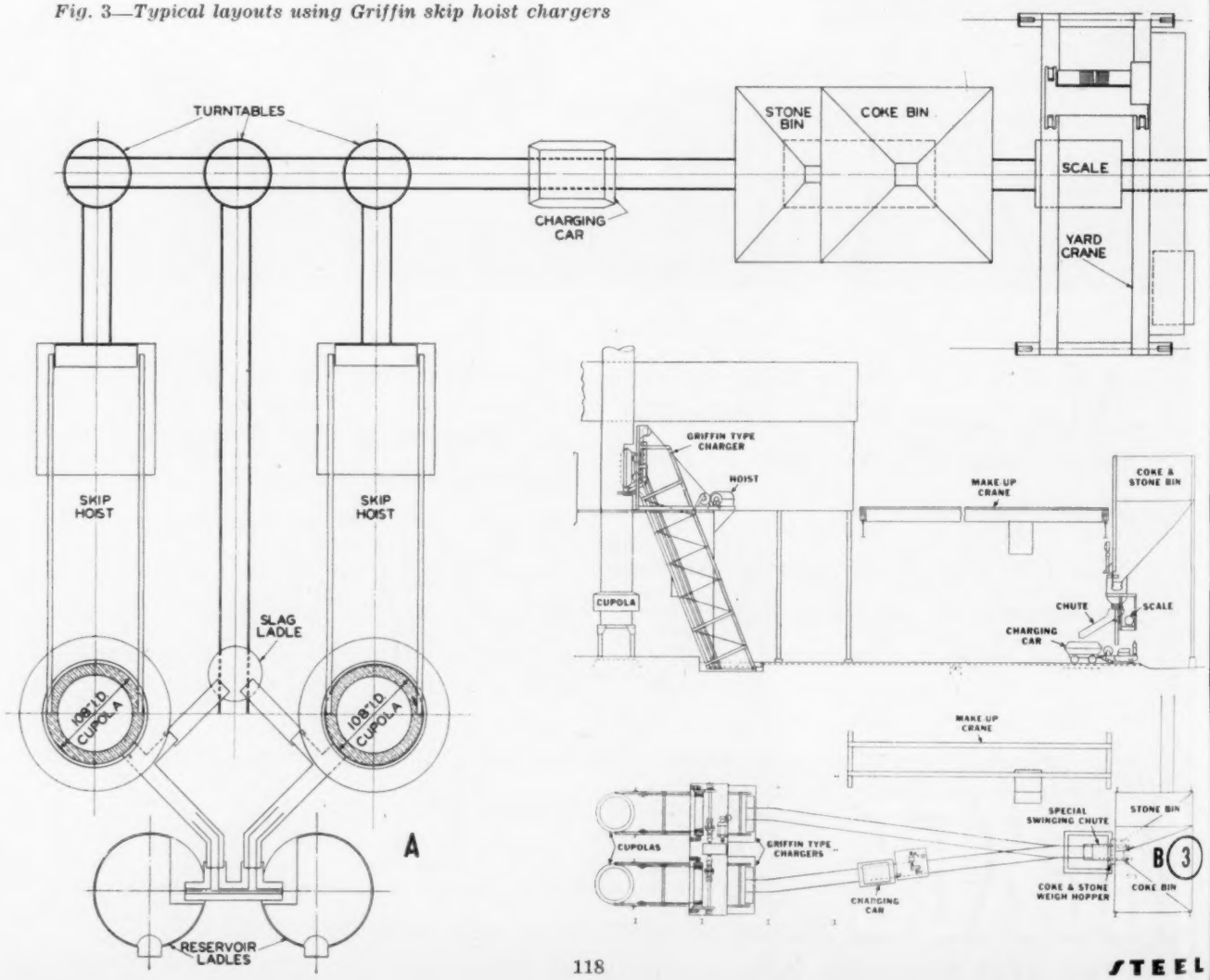
Operating Cost for a No. 12 cupola, based on 18 tons per hour and 72 hours between repairs.

	Cost per ton of melt
Coke @ $18.00 per ton—Ratio 6 to 1	$3.00
Stone @ $3.00 per net ton—100 pounds	.15
Operating labor—6 men @ $1.25 per hour	.42
Maintenance labor—2 men @ $2.00 per hour, 2 men @ $1.25 per hour.	.36
Power @ 1c KW hour—7 K.W. per ton	.07
Refractory material—brick and ganister	.30
Oil for heating ladles	.10
Miscellaneous maintenance — oiling, etc.	.10
Cooling water	.10
Soda ash @ 1.3c per lb.—30 lbs. per ton	.39
	$4.99

Say $5.00 not including spread charges.

This estimate is shown in sufficient detail so that the figures can be changed to conform to local conditions, such as the cost of coke, power, fuel, labor, etc. Labor costs

Fig. 3—Typical layouts using Griffin skip hoist chargers



are based on a mechanized charging and make-up system. Three men per shift should be maximum to make up and charge the cupola—one on the yard crane—one on the car transferring material from the make-up to the pick-up point, and one on the charging crane. If a skip hoist is used, one man will be needed on the yard crane, and two on the ground. An overhead bin equipped with weigh hopper from which coke and stone are discharged by gravity to charging car or bucket should be installed.

In most cases the time to make an open-hearth heat has been reduced through the use of 30 to 40 per cent hot metal in the charge, by at least 30 per cent as compared to an all-cold charge. One open-hearth superintendent said he can make as much steel with one cupola and two open-hearth furnaces, as was possible with 3 furnaces charged with cold metal.

Considering the cost of a cupola installation as compared to the cost of an open-hearth furnace, this is quite an argument for the cupola.

An important item in the time saved through the use of hot metal, lies in the reduction in the time required to charge the furnace. Scrap steel is getting lighter all the time. One melter recently made the remark—"They don't dare to ship it now on a windy day." As a result, it requires a long time to get the heat charged—being often necessary to charge, melt down, and recharge as much as four to five times.

A well planned cupola installation should include the following equipment:

1.—A yard crane of 7½ to 10 ton capacity and perhaps 70-foot span
2.—A 65-inch magnet and a 1½-yard motorized grab-bucket
3.—A coke and stone bin with weigh-hopper
4.—A motorized transfer car to transport charging buckets from make-up point to pick-up point
5.—A charging crane—approximately 5 ton capacity and about 25 foot span
5a.—Alternate—skip hoist charge.
6.—Charging buckets—or charging cars if a skip hoist is installed instead of a charging crane
7.—2—No. 12 cupolas—108 inch diameter, about 65 feet high
8.—1 (or 2) Positive pressure blowers—capacity 15,000 cubic feet per minute against 40 ounce resistance
9.—Air-weight control equipment
10.—2—75 ton Reservoir ladles—with motorized tilting equipment. (Alternate—1—200 ton cradle furnace)
11.—Transfer ladles—30 to 40 ton capacity.

Size of the transfer ladles will be determined by the capacity of the crane serving the open-hearth charging floor.

Cost of the equipment will vary with each plant, but an approximate figure at the moment would be $150,000.00 to $160,000.00 not including freight, installation, foundations and any necessary building alterations.

The yard crane has not been included in the above figure as it is assumed that the steel plant already has sufficient crane service available in the stock yard. If an additional crane is required, some $30,000.00 must be added.

Advantages of a cupola installation to supply hot metal for open-hearth furnaces may be summarized as follows:

1.—Increased output up to 30 per cent accomplished with lower capital investment than possible by installing additional open-hearth furnaces.
2.—Shorter delivery time for cupola installation
3.—Lower operating cost for open-hearth furnace because of shorter time to make a heat. This affects labor, maintenance, fuel and overhead costs.

The disadvantages at the present time have already been referred to:

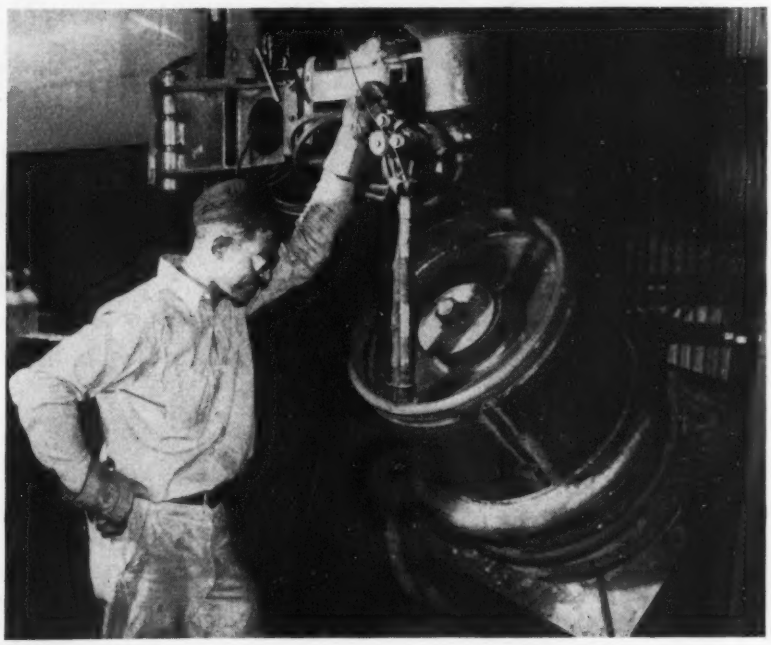
1.—Present shortages of steel scrap and cast iron scrap
2.—Present inflated price of scrap
3.—Difficulty to obtain coke

The short supply of pig iron makes a cupola installation very attractive if scrap supply is satisfactory. The cupola produces a product, using scrap as raw material, which is a very satisfactory substitute for pig iron, being much more desirable if the pig iron must be charged cold.

Bright Finish Stainless Eliminates Polishing

Chrome-nickel steels such as the popular 18-8 in dead soft annealed temper can now be furnished in a bright mirror finish without expensive buffing or polishing by Cold Metal Products Co., Youngstown. The bright finish is achieved by rolling with special tungsten carbide rolls and is retained during the annealed operation by a new technique.

Important economies for the fabricator presenting opportunities for increased profit and product upgrading by use of more corrosion-resistant material are predicted with elimination of costly polishing and buffing operations. Use of 18-8 stainless is expected to be extended to many products and applications where economy dictated use of materials of lesser quality in the past. This new product is being offered in widths up to 7½-inches and in thicknesses 0.001-inch and heavier.



WHEEL WELDING: This earth mover scraper wheel, one of 10 to 12 which can be welded in an eight-hour shift, requires about 30 feet of welding to join the various parts of its assembly. These are held together by manually made tack welds. Welding head is shown fillet welding disk to rim. The type CA Union-melt welding head, made by Linde Air Products Co., New York, is mounted on a pantograph boom with a rod feed motor operated by compressed air

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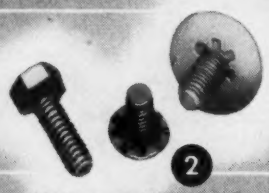

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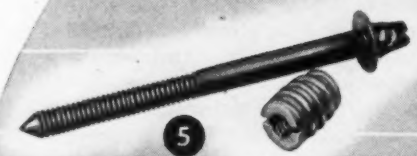

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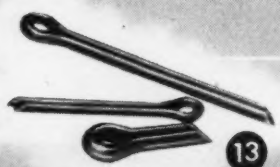

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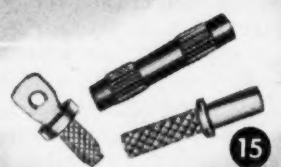

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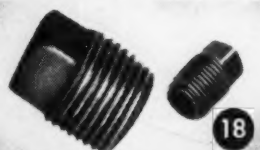
17 WIRE ROPE CLIPS with the new Hi-Center Saddles and extra-strength U Bolts



18 PIPE PLUGS, square head and headless; forged steel, heat-treated

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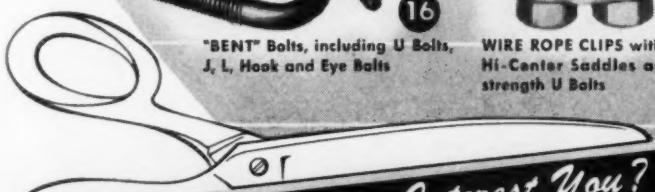

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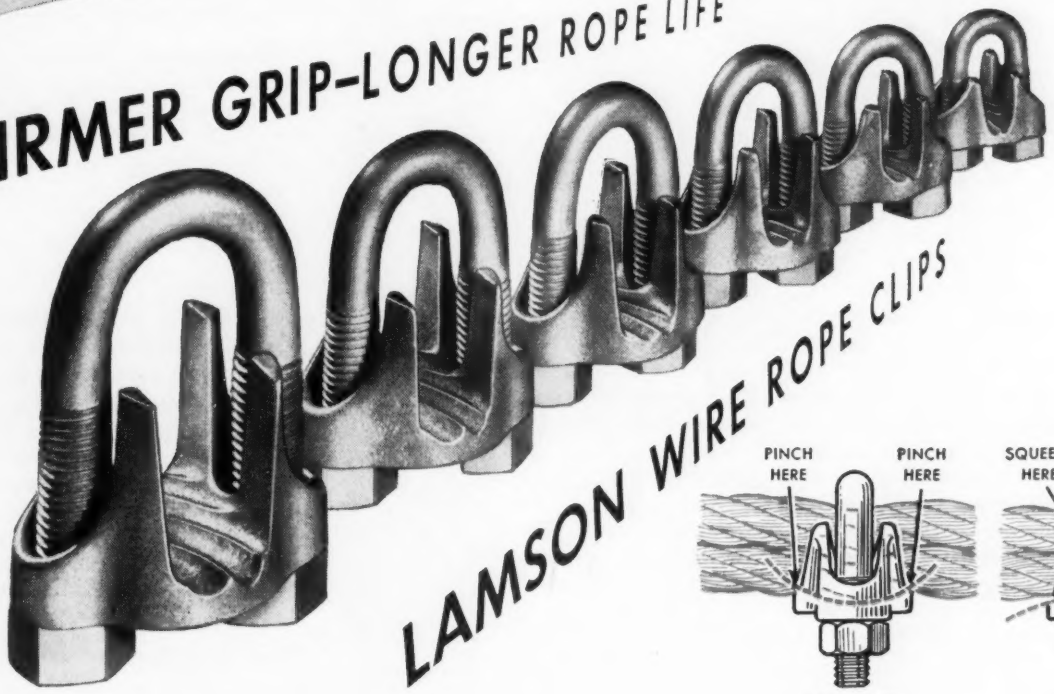
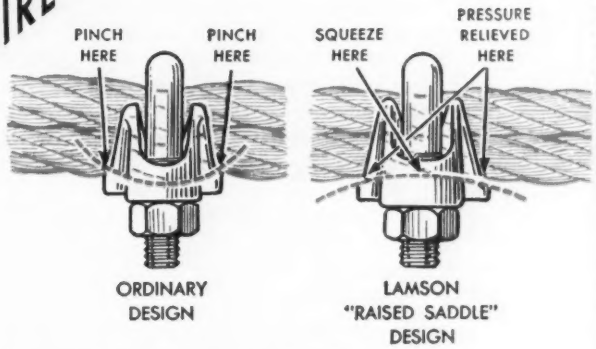


LAMSON WIRE ROPE CLIPS



ORDINARY DESIGN

LAMSON "RAISED SADDLE" DESIGN

LAMSON "Bull Dog" Wire Rope Clips perform like champions when "the squeeze is on". The secret of their efficiency lies in the exclusive "Raised Saddle" design which distributes the holding pressure along the center portion of the rope "seat". The edges of the saddle are rounded downward —thus eliminating the rope-wearing "pinch" and chafing of conventional clips.

The drawing above graphically illustrates the superiority of the Lamson "Raised Saddle" design. Note these outstanding and exclusive features:

1. Saddle curves downward at edges thus relieving pressure and "pinch" on wire rope . . . particularly when rope enters clip at an angle.
2. Clip is thicker, and therefore stronger, at central, raised portion of the rope seat. This allows for greater tightening of the clip and a consequent stronger no-slip grip.
3. "U" bolt nuts will not tend to loosen up with use as with ordinary clips . . . even when the strain on the rope is released or reversed.

For the sake of safety, economy and efficiency, you'll be way ahead to specify Lamson "Bull Dog" Wire Rope Clips.

THE LAMSON & SESSIONS COMPANY

General Offices: 1971 West 85th Street, Cleveland 2, Ohio

Plants at Cleveland and Kent, Ohio • Birmingham • Chicago

SPECIAL PURPOSE Lamson+Sessions FASTENERS

E BOLTS • SEMI-FINISHED NUTS • LAMSON LOCK NUTS • MILLE
ELEVATOR BOLTS • STOVE RODS • TRACTOR BOLTS and HI-N BOLTS • S
G CENTER BOLTS • HUB and WHEEL BOLTS • MACHINE SCREW LTS • BRA
BARREL NUTS • OBLONG NUTS • CABINET BED BOLTS • AIR NUTS and SCREWS •
INSERTS • EYE BOLTS • CLEVIS PINS • HINGE PINS • TINNER THUMB SCREWS • FIN HEAD BOLTS •

Finish Standard

(*Concluded from Page 92*)

color, corrosion resistance, hardness, microstructure, absorption characteristics or the like. The General Motors surface finish standard is written to conform to the American Standards Association B46.1 standard.

Definitions—Roughness height rating: A physical measurement in microinches which shall be the arithmetical average of a series of peak to valley measurements of the surface roughness. These are to be taken with an approved roughness measuring method which has been calibrated with reference to the geometric surface finish blocks, and are to be taken normal to the surface and, unless otherwise specified, in the direction giving the greater value (usually across the lay).

Roughness width rating: The maximum permissible width of repetitive units of the dominant surface pattern. It may be specified in inches adjacent to the lay symbol. Irregularities having widths up to and including the maximum specified, or when no dimension is specified, up to and including the width of the irregularities due to machine feed shall be the basis for the roughness width specification.

Waviness height rating: A physical measurement in inches which represents the average vertical distance from peak to valley of the wave.

Waviness with rating: Waviness widths may be specified directly in inches.

Lay specification: The lay of a surface shall be specified by the lay symbol indicating direction of the visible surface marks.

Values of Roughness and Waviness—Use of only one number shall indicate the maximum value of either the height or the width of irregularities. Any lesser degree shall be satisfactory. When two numbers are used they shall specify the maximum and minimum permissible values. Standards have been established only for height values, as follows:

Roughness (microinches)						
1	5	13	32	80	200	500
2	6	16	40	100	250	600
3	8	20	50	130	320	800
4	10	25	60	160	400	1000

Waviness (inches)					
0.00002	0.00008	0.0003	0.001	0.005	0.015
0.00003	0.0001	0.0005	0.002	0.008	0.020
0.00005	0.0002	0.0008	0.003	0.010	0.025

Standard symbols for Lay

= Parallel to the boundary line of the surface indicated by the symbol. Example: Parallel shaping, end view of turn and O.D. grind.

⊥ Perpendicular to the boundary line of the surface indicated by the symbol. Example: End view of shaping, longitudinal view of turn and O.D. grind.

× Angular in both directions to the boundary line of the surface indicated by the symbol. Example: Side wheel grind, and traversed end mill.

M Multidirectional. Example: Lap, superfinish.

C Approximately circular relative to the center of the surface indicated by the symbol. Example: Facing.

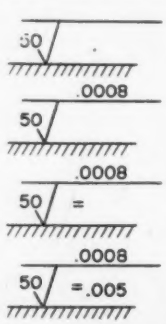
R Approximately radial relative to the center of the surface indicated by the symbol.

=.005 Numerical value in inches of the width of spacing or roughness is added to the right of the directional indication in the lay symbol.

DATA FOR PROPOSED SURFACE FINISH STANDARD

Depth of Cut, Microinches	Angle of Cut	Lines, In.	Pitch, Micro-Inches	Loss of Penetration Due To Stylus Radius of, Microinches, 500	400	100
1000	126°54′	250	4000	59	47	12
800	136°24′	250	4000	38	31	8
600	145°36′	250	4000	22	18	4
500	150°	263	3800	17	14	3
400	150°	333	3000	17	14	3
320	150°	416	2400	17	14	3
250	150°	526	1900	17	14	3
200	150°	666	1500	17	14	3
160	150°	833	1200	17	14	3
130	150°	1000	1000	17	14	3
100	150°	1250	800	17	14	3
80	150°	1666	600	17	14	3
60	150°	2000	500	17	14	3
50	150°	2500	400	17	14	3
40	150°	3333	300	17	14	3
32	150°	3333	300	17	14	3
25	150°	5000	200	15	12	3
20	157°24′	5000	200	10	8	2
16	161°50′	5000	200	6	5	1
13	165°12′	5000	200	4	3	1
10	168°54′	5000	200	2	2	Nil

Surface Finish Symbol—The symbol used to designate surface irregularities is the check mark, with extension, as shown below. The point of the symbol may be on the line indicating the surface, on the witness line, or on an arrow pointing to the surface. The long leg and extension shall preferably be to the right, as the drawing is read. The short leg may be increased in width to be more conspicuous if desired.



Roughness height value is placed adjacent to and on the inside of the long leg as shown.

Waviness height value, when required, is placed above the extension line as shown.

Lay designation, when required, is placed in the lay symbol under the extension line as shown.

Roughness width value, when required is placed to the right of the lay symbol as shown.

Inspection Details—Surface Roughness: A method of comparison shall be used. The piece which is being inspected may be compared by feel, or instrument means with a sample of known surface roughness. This sample may be a geometric surface finish block or a control piece part having surface characteristics in accordance with the specifications. When using a sample of this type, it is recommended that the comparison be made by feel, or by suitable measuring instrument. A visual inspection is not reliable due to the fact that the piece being inspected may be of a different material than sample and may have been machined differently.

When one piece has been machined and accepted in accordance with the drawing specifications, this piece may become the control piece, and all subsequent pieces may be compared with it visually and by feel. There will be occasions when the decision is marginal and it will be difficult to agree as to whether or not the piece conforms with the sample. This will be particularly true of the smoother finishes. In these cases, it will be necessary to use a profile measuring instrument.

Surface Waviness: Inspection may be by any standard device for linear measurement, bluing gages or light gages as required. Measurement of waviness less than 0.0001-inch will ordinarily require the use of optical flats, bluing gages or similar devices.

Lay: Inspection shall be visual.

Metallographic Study Reported by Association

Comprehensive analysis of metallographic techniques for iron now in general use is now being prepared by committee on cast iron microstructures of American Foundrymen's Association, Chicago. The first published report will consist of four sections: Introduction which will include general background, cutting and mounting; grinding, polishing and etching; photomicrography, developing and printing; and special tricks of the trade.

Excellent results have been obtained by operators using widely different polishing methods, while a number of operators using the same general method may obtain very good or very poor results. These facts resulted in a decision by the committee to issue a series of reports giving thorough descriptions of several successful methods which should serve as the best basis on which laboratories can improve their practices.

DIES LAST LONGER ON FERRACUTE INCLINABLE PRESSES

Extra long gibs guide tools accurately, give extra long life for dies.
Unusually heavy frame reduces deflection, lengthens die life . . . .

Check these additional features that will lower your costs:

- *Ferracute low-maintenance clutch.*
- *Adjustable ground gibs and ram.*
- *Ample shut height.*
- *Safety flywheels.*
- *Quick application of standard roll feeds.*
- *Back shaft equipped with roller bearings on larger presses.*
- *Bronze bushed.*
- *Air ram balance can be applied easily.*
- *Quick, easy change-over from single stroke to continuous operation.*
- *Immediate or very prompt delivery.*

Ferracute Presses "never wear out." You can figure on lower maintenance on every set of dies you buy in the next 50 years. Choose economical, low-maintenance Ferracute Inclinables for your utility press line-up. For cutting, punching, blanking, stamping, shallow drawing and forming. Models from 5 to 150 tons.

- *Write for full specifications and information.*

FERRACUTE MACHINE CO., Bridgeton, N. J., U. S. A.

Pre-coated ThomaStrip used on FIBRE RECEPTACLES

A leading manufacturer of fibre receptacles values the qualities of Zinc-Coated ThomaStrip which provides corrosion resistance, adherence of the coating during severe forming operations, and the smooth finish. These durable receptacles, with rings and reinforcements made of Zinc-Coated ThomaStrip, are used in the textile industry to transport yarns and finished materials throughout the factories.

Thomas engineers will be glad to use their wide experience to improve your product or reduce your costs.

ELECTRO-COATED ZINC, COPPER, NICKEL, AND BRASS . . HOT DIPPED TIN AND SOLDER . . LACQUER COATED IN COLORS . . UNCOATED PRECISION STRIP, CARBON AND ALLOY SPECIALTIES

ThomaStrip
COLD ROLLED STRIP STEEL
REG. U. S. PAT. OFF.

THE THOMAS STEEL COMPANY
WARREN · OHIO

COLD ROLLED STRIP STEEL SPECIALISTS

Forging Practice

(*Concluded from Page* 102)

the position of the flow lines in the forging, for the strength of the forging can be increased if the fiber structure is placed to advantage in the forging to resist the stresses that are encountered in the part. If the forged part has an ample factor of safety, or if the important loads are static, position of the flow lines is not too important, since the strength of the forging in tension (or pulling apart) is about the same in all directions.

Yield strength, the point where the metal has been stretched to a point so it will not return to its original length, is about the same in all directions. However, toughness or resistance to live loads, such as impact, shock, vibration and fatigue, is much greater when the flow lines are positioned to advantage. In the design of parts that must be light yet strong, such as aircraft fittings, the position of the flow lines is highly important. It is well to remember that the best strength to resist live stresses in forged metal is to have the flow lines positioned as they would be positioned in wood for the best strength.

Notice how the flow lines are formed around the gear blank in the forged part.

(*To be continued*)

Threadless Bronze Pipe Fittings Developed

Threadless bronze pipe fittings for brazing to brass or copper alloy tubing of pipe were announced recently by Stanley G. Flagg & Co. Inc., Philadelphia, to match the previously developed threadless malleable iron fittings and give pipe fabricators a choice between ferrous and nonferrous piping. Fittings are applicable for 150 pound working steam pressure at 450° F, or 300 pound nonshock cold water, oil or gas lines.

Full socket depth of the fitting is brazed to the pipe and there is no loss of wall thickness by threading. Any capillary action alloy can be used for brazing brass, copper pipe or tubing to the bronze fittings.

—o—

Low pressure spray painter for steel barrel chimes has been introduced by Eclipse Air Brush Co., Newark, N. J., and is automatic through positioning of barrels, spraying and discharge of finished job. The unit which incorporates two guns mounted in position for painting chimes or for striping can turn out more than 400 barrels per hour.

New Products and Equipment

Tap Grinder

Chamfers of 90 degree bent and 180 degree precision hook tapper taps may be accurately sharpened with the model 1500 Hybco tapper tap grinder, built by Henry P. Boggis & Co., 1279 West Third St., Cleveland 13, O. Taps of the above types

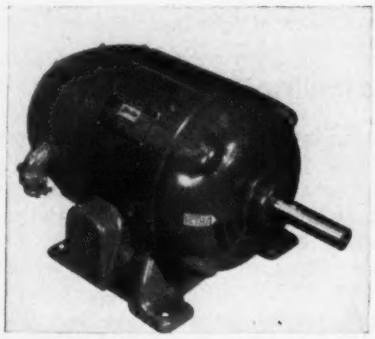
from 3/16 to 1¼ inches in length may be sharpened, along with straight shank tapper taps from 3/16 to 2½ inches.

Length of chamfer and amount of relief is variable. Change gears for 3, 4, 5, 6 or 8 flutes, right or left hand thread, are provided.

Check No. 1 on Reply Card for more Details

Induction Motor

With frame rolled of steel plate, feet and pulley end bracket of pressed steel and front end bracket of close-grained cast iron, the type CWP wound rotor Life-Line induc-



tion motor, built by Westinghouse Electric Corp., Pittsburgh 30, Pa., is of open drip-proof construction. It is offered in ratings of 1 to 15 horsepower (frames 203 through 326). Brushes are made of electro-graphite or metal graphite, depending on service requirements.

Rotor core consists of punchings riveted into a solid structure and held on the shaft by a shrink fit. Winding have coils threaded in partially enclosed slots. An oversize fan gives maximum air circulation. The type CWP motors may be used where adjustable speed is required or where high starting torque with low starting current is necessary. Motors are offered for use with current of various cycles, phases and voltages. Revolutions per minute vary with the cycle.

Check No. 2 on Reply Card for more Details

Hydraulic Press

Operation of hand lever produces up to 8 tons pressure between the platens of the portable hydraulic press, introduced by Studebaker Machine Co., 1221 South 9th Ave., May-

wood, Ill. Optional with the unit are electrically heated platens for plastics or other operations. Heating element is thermostatically controlled. Press is adaptable to broaching, assembling, piercing, oil grooving, riveting, forming, etc.

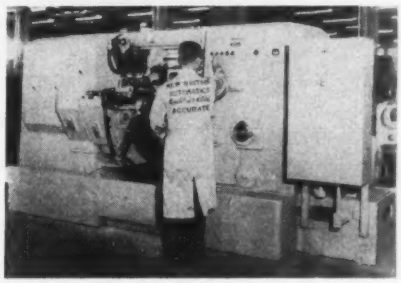
Press is self-contained and self-powered. Control is entirely by hand lever and release is by handy valve. Base is 10 x 10 inches and height is 13 inches. The hydraulic ram travels 3 inches. Platens measure 5½ x 7 inches and platen openings may be from 0 to 6 inches.

Check No. 3 on Reply Card for more Details

Six-Spindle Machine

Built to handle carbide tooling, the model 602 multiple spindle automatic screw machine, built by New Britain-Gridley Division of New Britain Machine Co., New Britain, Conn., has a standard capacity of 2¼ inches. The six cross slides are all radial to the center line of the spindle carrier and are 60 degrees apart. This symmetrical radial arrangement gives the same line of forming thrust in each position.

Carbide tooling can be applied because of machine's overall weight and ruggedness. Cross slide cams are

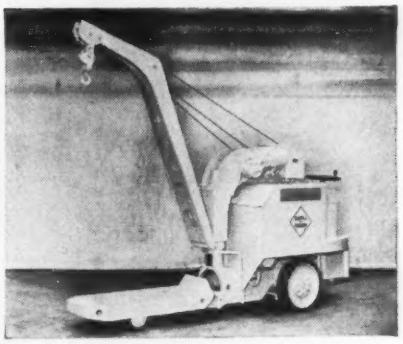


within the cross slide mountings. Quick set-ups are accomplished as tool holders are interchangeable, cross slide cams are easily changed and attachments are conveniently applied. A universal main tool slide adjustment permits selecting of any ratio of approach to feed without changing high point, drawback, stops or total stroke. Stock feed-out length is adjusted without changing cams.

Check No. 4 on Reply Card for more Details

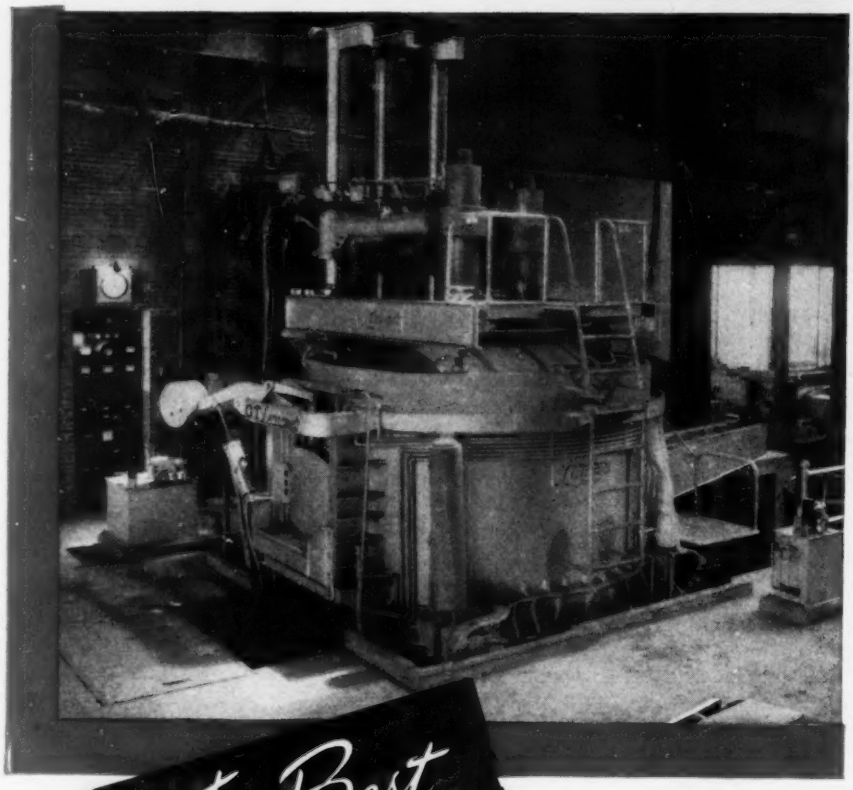
Power Truck

A low-lift platform and a crane are featured on the new power industrial truck offered by Elwell-Parker Electric Co., Cleveland, O. The crane can pick up a load from floor level and lift it to a hook height of 8 feet within a radius of 45 de-



grees either right or left from the base. Truck's platform can lift and transport loads weighing up to 3 to 5 tons, depending on size and model.

Loads may be piled directly on the platform or on skids under which the platform can maneuver after loading. Crane and platform are operated independently. The 8-foot boom is of box girder construction. Its foot is pivoted on a turntable base



The Best

IN MECHANICAL AND ELECTRICAL DESIGN
FOR ECONOMICAL METAL MELTING

MOORE RAPID
Lectromelt
FURNACES

Proper coordination of the best in electrical and mechanical design is the basic foundation of Lectromelt equipment—and one reason why Lectromelt furnaces are unsurpassed in efficient, economical metal melting.

Long efficient service with minimum maintenance costs while performing with flexibility and rapidity has always been the Lectromelt story. Lectromelt furnaces of the top charge type are available in sizes ranging from 100 tons to 250 pounds. Write today for complete information.

MANUFACTURED IN

ENGLAND	Birlec, Ltd., Birmingham
FRANCE	Stein et Roubaix, Paris
SPAIN	General Electric Espanola, Bilboa
BELGIUM	S. A. Belge, Stein et Roubaix, Bressoux-Liege

PITTSBURGH LECTROMELT FURNACE CORP.

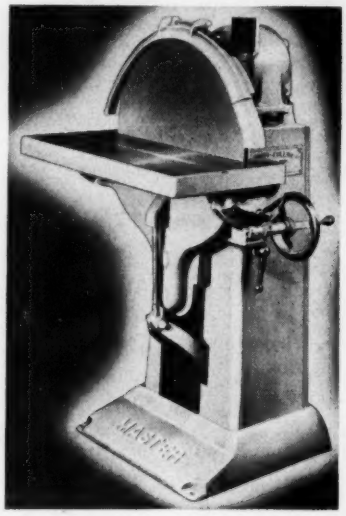
PITTSBURGH 30, PA.

mounted on forward end of truck at back of lift platform. Crane's load lifting capacities range from 1000 to 2000 pounds, depending upon the model.

Check No. 5 on Reply Card for more Details

Disk Grinder

Designed for the grinding of wood, metal and plaster, the new 24-inch disk grinder, manufactured by Kindt-Collins Co., 12653 Elmwood Ave., Cleveland 11, O., is made vibrationless through perfect balance. It is quickly and easily adjusted by means



of a counterbalanced table which can be moved up or down 11 inches by hand pressure to any desired position.

Feature of the grinder is the reversible disk for right or left hand jobs. A 5-inch hole in the back of the machine permits attaching to a house suction system or dust collector. Master dust collectors, made by the company, are available for use with the grinder.

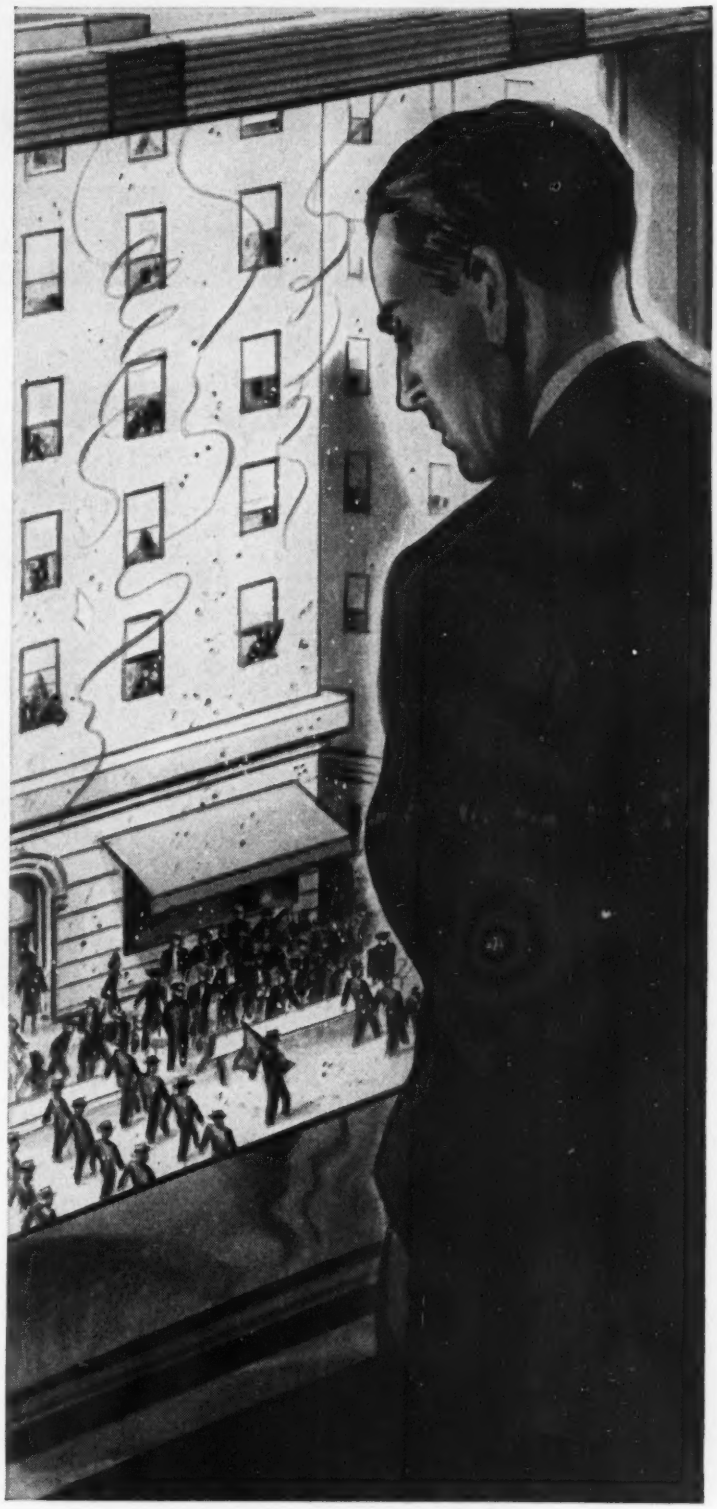
Check No. 6 on Reply Card for more Details

Controlling Pyrometer

An extremely low differential controller is the Simplytrol indicating and controlling pyrometer for furnaces, ovens, kilns, etc., made by Assembly Products Inc., Main and Bell Sts., Chagrin Falls, O. Thermocouple type control instrument has a high resistance millivoltmeter indicator equipped with platinum contacts that close when the set temperature is reached. Contacts are spring loaded and remain locked together until released; at which time they are forcefully separated.

Difference between shut-off and turn-on millivolts is nearly zero. Lock control switch is rated at 10 amperes, 125 volts. Indicators are

MEMO TO PRESIDENTS WHO WATCHED THE BAND GO BY!



HERE'S ONE parade that isn't "all over but the shouting" after the band has passed. It's the Payroll Savings Plan for the regular purchase of U. S. Security Bonds by employees.

Though the formal spring campaign to sell Bonds is over, any company can still move forward with the parade. Right now thousands of companies are putting *additional push* behind their Payroll Savings Plans. Managements of many companies that have not yet participated are *now installing* the Plan.

It's a "look-ahead" plan, that benefits employee, company, and nation. Every $3 invested in Bonds pay $4 at maturity. Personnel records in the plants with active P. S. P. programs show improved employee attitudes—evidenced by less absenteeism and fewer accidents—as the individual's sense of security grows with Bond purchases. And every Security Bond dollar built up in the Treasury retires a dollar of the national debt that is potentially inflationary. It means less bidding-up of prices. Moreover, Bond buyers are better citizens because they have a tangible stake in the nation's future.

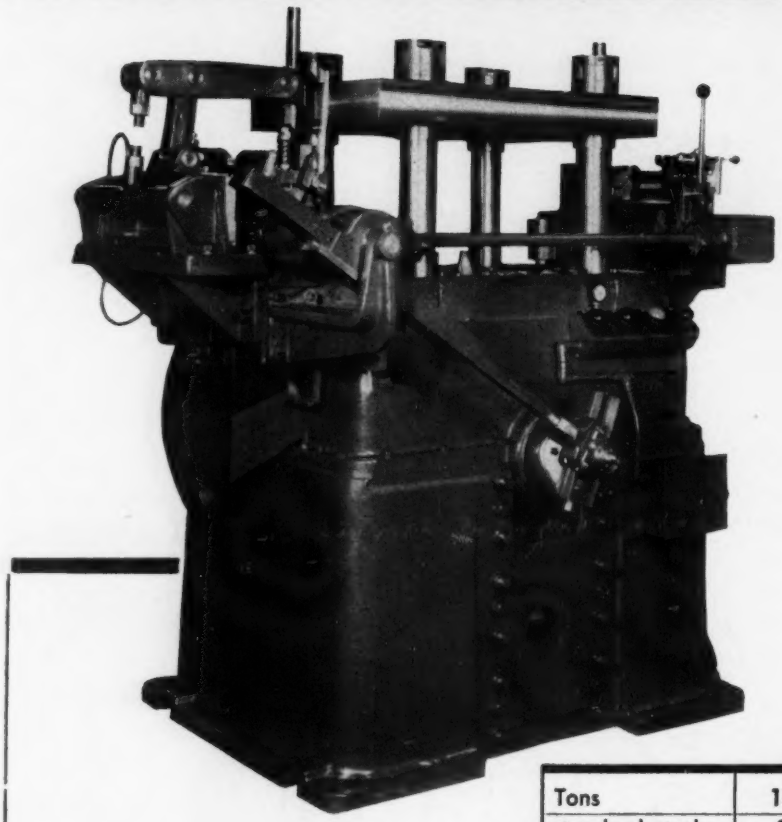
It's just as easy to take action now as when the campaign was at its height. Just call your Treasury Department's State Director, Savings Bonds Division, and ask for the material that helps to get a Payroll Plan started or to keep it rolling.

The Treasury Department acknowledges with appreciation the publication of this message by

STEEL

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.

Blanking, forming and deep drawing at high speed with a BRANDES PRESS



This press has been designed and built simply to make money for you by producing stampings at high speed. The machine is precision built and features rigid construction and low stress loads, properties which assure long continuous uninterrupted production at a minimum cost. Patented precision guiding features permit the use of long progressive dies, which feature plus low center of gravity result in higher than normal production speeds and greatly increased die life. The *BRANDES PRESS* has air counterbalance, air operated friction clutch and brake electrically controlled, continuous automatic lubrication as standard equipment, and requires no special foundation. The BRANDES PRESS is available in sizes from 30 to 750 tons capacity, and has a wide application in the stamping field. Illustration is that of a 150 ton capacity press. Let one of our engineers look over your stamping problems; he is qualified to show you how to lower costs and increase production. There is no obligation, of course. There is good news on delivery too; our production schedule enables us to make early shipment.

Tons	150
standard stroke	3"
adjustment	3
crankshaft dia.	6½"x8½"
pitman screw dia.	5½"
draw rods dia.	4¾"
die clearance	20"x25"
bed area	38"x60"
bed opening	10"x40"
top platen area	36"x54"
flywheel dia.	60"x12"
flywheel rim weight	4000#
height over all	105"
to top of bed	71"
h.p. motor	25
floor space	8'x8'
weight	39,000#
strokes per min.	150
hole in upper slide for punch-shank	3"

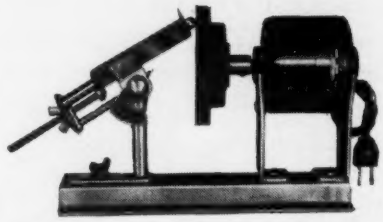
The Brandes Press Co., 6408 Euclid Ave., Cleveland 3, O.

calibrated in both Centigrade and Fahrenheit. Available ranges are 0-2500°F, 0-1500°F, 0-500°F and equivalent Centigrade. Operation is from 110 or 220 volt alternating or 110-volt direct current. Instruments are supplied as package units and may be put in operation by the customer. Connections are two each of supply line, load and thermocouple for operation.

Check No. 7 on Reply Card for more Details

Drill Grinder

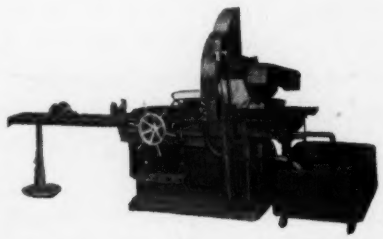
The average drill may be sharpened in 30 seconds with the recently announced drill grinder, made by E Z Mfg. Co., 4408 San Fernando Rd., Glendale 4, Calif. The grinder is furnished with protractor fixture and adjustable spacer that is adjustable to various length drills. Its motor is mounted on a lightweight metal base which provides ease of installation and handling.



Check No. 8 on Reply Card for more Details

Abrasive Cutting Unit

Model 460 wet abrasive cutting machine, built by Campbell Machine Division of American Chain & Cable Co. Inc., Bridgeport 2, Conn., is a semiautomatic machine consisting of an oscillating swing frame, a work feeding and holding mechanism, a coolant system and a hydraulic work clamping and wheel feed unit. The abrasive wheel is automatically fed through the work and upon completion of the cut, is automatically returned to starting position, compensation being made in the return for wheel wear.



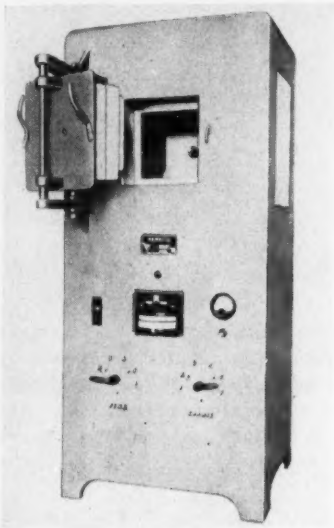
Handwheel operated feed carriage acts as a length gage bar for cut-off pieces and serves as an ejector for the cut-off parts. The bar being cut is firmly clamped on both sides of the cut-off wheel while cut

is being made. This semiautomatic machine will cut materials 6 inches in diameter (solid stock) or any shape that can be contained in a 6-inch circle.

Check No. 9 on Reply Card for more Details

Laboratory Kiln

All controls and operating mechanism are contained in the one compact housing of the laboratory kiln announced by Pereny Equipment Co., 893 Chambers Rd., Columbus 8, O. A deep hinged, plug type heat seal door opens into a working chamber measuring 9 x 9 x 9 inches. Unit is capable of attaining 2700° F for normal operation and up to 3000° F for occasional flash firings. Standard equipment includes safety pilot light, circuit breaker cut-off switch, indicating pyrometer, automatic temperature controller and current input meter.

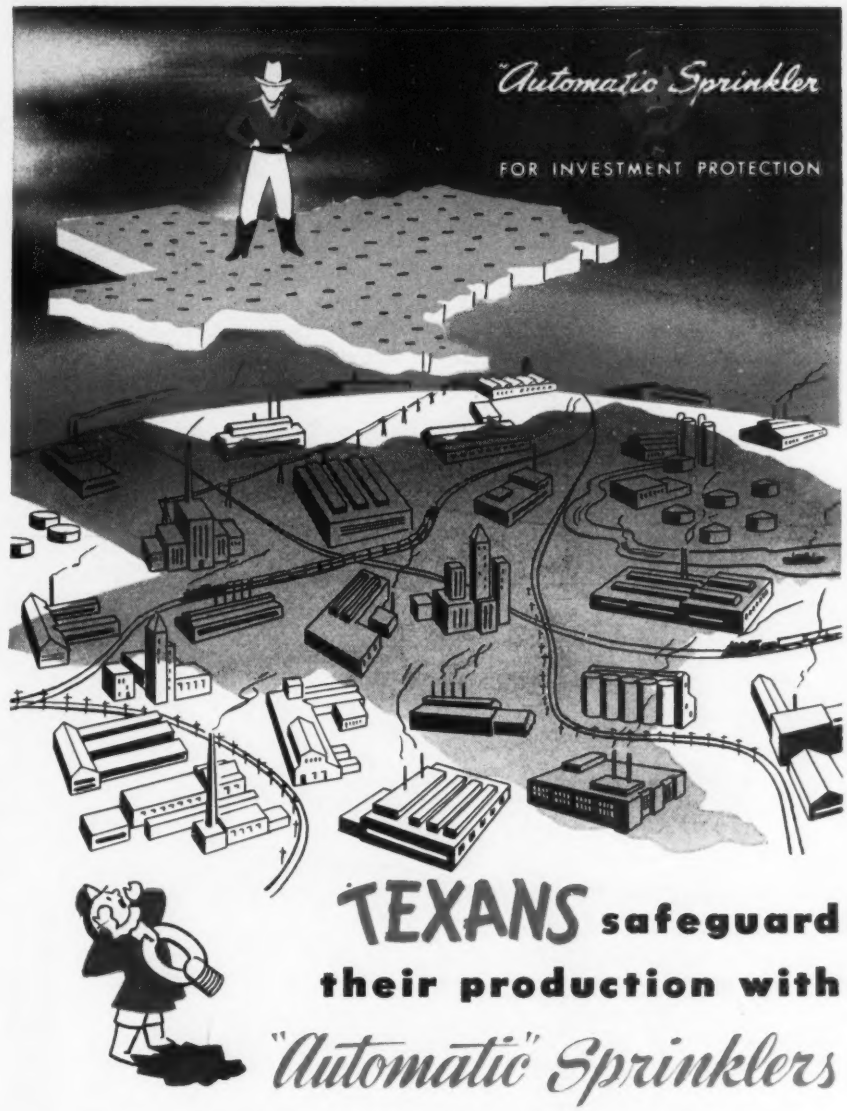


Installation requires plugging in the instrument, inserting the elements and connecting the power. Heat is evenly distributed from eight Globar elements. Pyrometer is fully automatic and electronically operated. All controls and instruments are arranged on the front panel. Lightweight insulation is 7½-inches thick. Operation of the LB-74 kiln is on 230 volts, 60 cycle single phase alternating current.

Check No. 10 on Reply Card for more Details

Milling Attachment

A vertical milling attachment which may be quickly applied to all makes of bench lathes is a development of Palmer Industries Inc., Chicago 21, Ill. To install it is necessary to remove the compound and install a vise, furnished as standard equipment, in its place. Milling at-



TEXANS safeguard their production with "Automatic" Sprinklers

AMERICAN INDUSTRY, owing to its constant expansion and development, presents to business management a definite challenge—a distinct opportunity. Yet business survival is dependent upon continued operation, and the menace of fire and its resulting destruction is always prevalent.

That leads us to the often asked question—"What makes a structure fire-safe?" It is well to keep in mind that you are not completely safe just because yours is a so-called fireproof building. Modern construction alone offers practically no protection. Fires that daily occur in such properties are mute evidence to the fact that a structure is only as fireproof as are its contents. Unfortunately, many realize too late the important role being played by "Automatic" Sprinkler in safeguarding American industry. Recorded statistics on the effectiveness of "Automatic" Sprinklers prove them to be industry's most effective weapon against fire . . . the very backbone of any good safety system.

These facts are the reason why thousands of business executives, not only in Texas, but throughout the country at large, specify "Automatic" Sprinklers for both old and new construction. They look upon them as their first line of fire defense, *an important investment today . . . perhaps welcomed protection tomorrow.*

"Automatic" Sprinkler
FIRST IN FIRE PROTECTION
DEVELOPMENT · ENGINEERING MANUFACTURE · INSTALLATION
"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA
YOUNGSTOWN 1, OHIO
OFFICES IN PRINCIPAL CITIES OF NORTH and SOUTH AMERICA

tachment is then set and clamped on the ways. Unit is driven by the lathe spindle through a V-belt and adjustable pulleys.

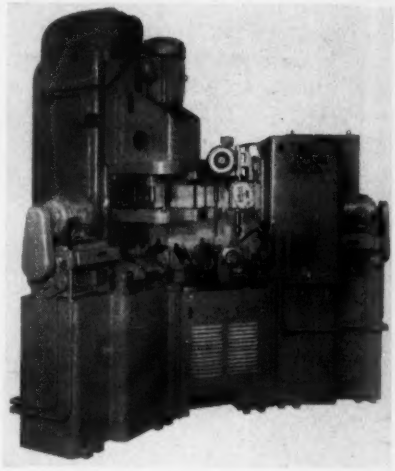
Longitudinal feed and cross feed on any lathe are used as on a milling machine. The attachment will make a cut 8 inches long on the longitudinal feed and half of the distance of the cross feed. It will take stock up to 3 inches in diameter under the cutter. End mills up to 1 inch can be used and in some cases 2½-inch circular cutters can be used. Surface grinding can be accomplished by the use of an inverted cup wheel.

Check No. 11 on Reply Card for more Details

Special Machine

Used to drill, spotface, ream, countersink and tap seven holes in approximately 138 automotive transmission rear bearing retainers per hour, the new machine designed by Le Maire Tool & Mfg. Co., 2657 South Telegraph Rd., Dearborn, Mich., has a 36-inch six-position automatic indexing table. In order to use the most desirable type of unit for each operation three different types of units have been combined: Vertical machine, slide type drilling unit for ample support of four-spindle head and two horizontal twin ram quill type drilling units with single spindles and a small vertical lead screw tapping unit with single spindle.

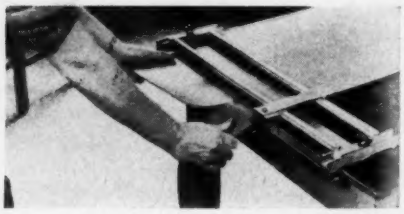
Indexing table carries six quick-acting fixtures and one part is completed at each cycle of the machine. Coolant is pumped from a tank built into the table base. A single push-button operates the automatic cycle. Other buttons control separate heads and are used in setting up the machine.



Check No. 12 on Reply Card for more Details

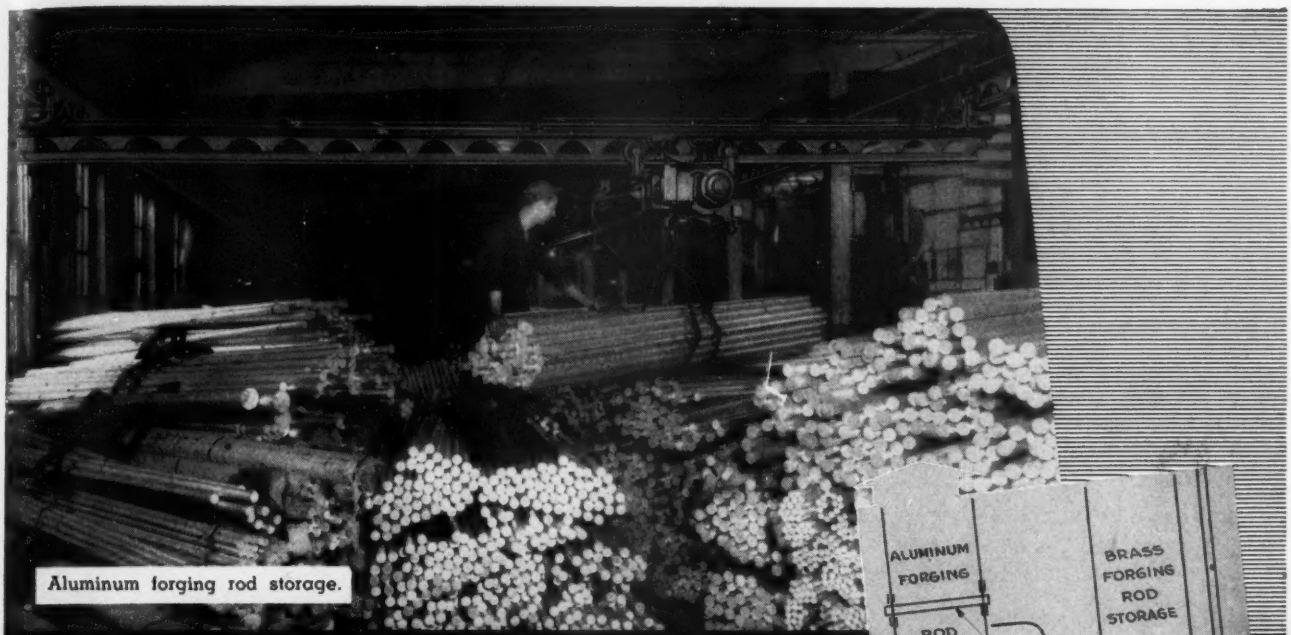
Belt Slitter

Beltuf Belting Co., 3773 Las Flores Ct., Los Angeles 34, Calif., is offering a belt slitter, designed to slit belting lengthwise at any desired width. It is attached to the end of a bench or table. After the cutting blade and guide are locked in position, the belt is pulled through by hand.



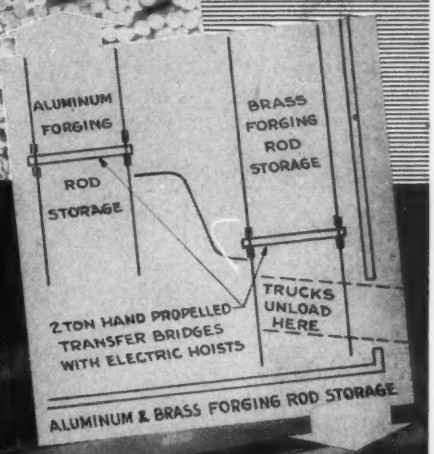
Cutting edge is a standard razor blade, reinforced by a holder from which it can be easily removed and replaced. Hold-down rollers keep the belt from buckling and an adjustable guide assures uniform widths. The slitter, offered for sale or loaned with a stock order, will slit belting up to 24 inches wide and ⅜-inch

Inside Hardened
Stainless Steel Does It!
BALANCED STRAIGHTWAY STOP VALVE
Just a look inside shows the spindle and the seat are made of hardened stainless steel for greater wear resistance. Entirely suitable for positive shut-off service in hydraulic systems.
The "Why" of Extreme Long Life...
isn't Skin Deep
THREE-WAY BALANCED SPINDLE TYPE VALVE
Look below the surface, the seating elements are of hardened stainless steel . . . to resist wear, corrosion and erosion to an incredible degree. For high pressure service . . . easily operated.
Ask us to send you the inside story of these high pressure valves... write for latest Valve Data Sheets.
HYDRAULIC PRESSES AND VALVES FOR
• INTENSIFIERS
EST. 1803
R.D. Wood Company



Aluminum forging rod storage.

AN EASY WAY TO HANDLE FORGING ROD . . .


ALUMINUM FORGING ROD STORAGE
BRASS FORGING ROD STORAGE
2-TON HAND PROPELLED TRANSFER BRIDGES WITH ELECTRIC HOISTS
TRUCKS UNLOAD HERE
ALUMINUM & BRASS FORGING ROD STORAGE

• Illustrated here is a simple, efficient method of handling and storing forging rod in one of the country's largest brass and copper plants.

The rod is received in bundles by truck and is unloaded by an electric hoist on a hand-propelled carrier. With the carrier on the transfer bridge the hoist can be spotted at any point over a truck. The rod is lifted and taken directly to either brass or aluminum storage without rehandling.

Because of the ease with which Cleveland Tramrail equipment operates, large tonnages of rod can be handled by one man in fast time. It can be piled high over the entire storage floor, thus putting to profitable use areas normally provided for aisles. Not only is this installation inexpensive, but it has long life and requires practically no maintenance.

Brass forging rod storage.

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BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
7831 *EAST 284th STREET* • *WICKLIFFE, OHIO*

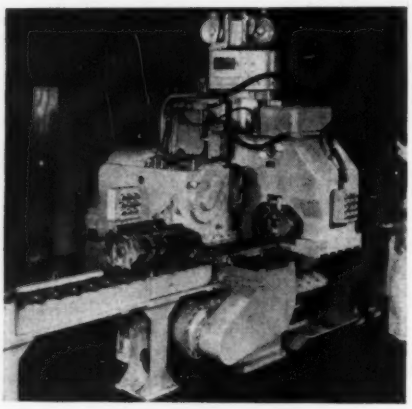
CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

thick. Other sizes can be made to order.

Check No. 13 on Reply Card for more Details

Special Miller

Both ends and the main bearing faces of an automotive cylinder block are automatically milled in a single clamping of the work with the special Rigidmil, designed by Sundstrand Machine Tool Co., Rockford,



Ill. Combining the machining of these surfaces reduces the handling time and by using the same location of the part, all surfaces are accurately machined in relation to each other.

Two 15 horsepower horizontal, single spindle heads have transverse feed on slide-ways at both ends of a rise and fall fixture where it is hydraulically clamped. A 7½-horsepower motor in machine base drives an arbor with cutters for straddle-milling the main bearing. Conveyor fed block enters loading position on a hydraulically operated shuttle. Automatic cycle begins with facing milling ends of block, then fixture feeds downward for straddle-milling.

Check No. 14 on Reply Card for more Details

Wheel Dresser

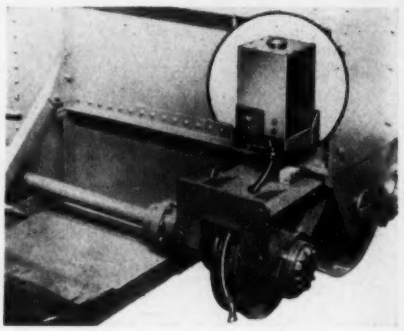
Accurate grinding by removing irregularities in the wheel and improving the cutting action is attained by use of the Tru-Dress grinding wheel dresser, made by Crown Industrial Products Co., 1517 East 53rd St., Chicago 15, Ill. Dressers may also be used to shape wheels for grinding special contours.

Tool is available in two sizes, with 3 and 4-inch emery wheels. Smaller of the two has wheel mounted on hardened steel bearings protected from dirt and abrasive, with provision for lubrication. Larger wheel is mounted on sealed ball bearings. The 4-inch model has a removable portion in the handle for clamping in the tool holder of a cylindrical grinder.

Check No. 15 on Reply Card for more Details

Crane Track Sander

Quick acceleration and deceleration of high speed cranes is possible with sander giving maximum traction



under all conditions, built by Lintern Corp., 50 Lincoln Ave., Berea, O. Applicable both inside and outside, where condensation of moisture on rails is common, the unit has a distributor nozzle of flexible rubber set close to the rail, thereby keeping

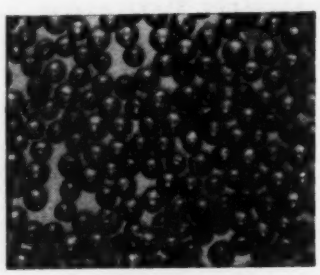
ACCEPTED
BY AMERICA'S LARGEST INDUSTRIAL PLANTS TO DO THE TOUGHEST BLASTING AND PEENING OPERATIONS

HI-GRADE METALLIC

FAMOUS
FOR ITS ABILITY TO STAND UP UNDER REPEATED HARD USE

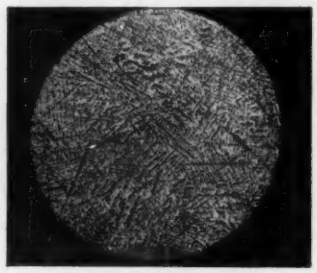
SHOT
- ROUND
- UNIFORM IN SIZE
- UNIFORM IN HARDNESS
- LACKS IRREGULAR SHAPES

GRIT
- RECTANGULAR
- SHARP
- TOUGH
- DURABLE



UNRETOUCHED PHOTO OF HI-GRADE SHOT

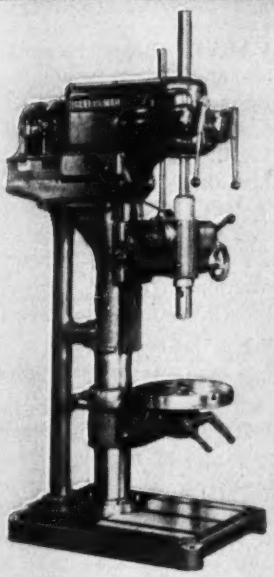
CLAYTON-SHERMAN ABRASIVES COMPANY
3896 LONYO ROAD
DETROIT 10, MICHIGAN
CEdar 7200



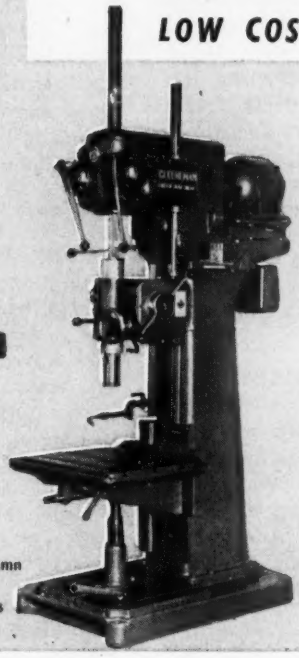
MICROSCOPIC STRUCTURE OF METAL

CLEEREMAN DRILLING MACHINES

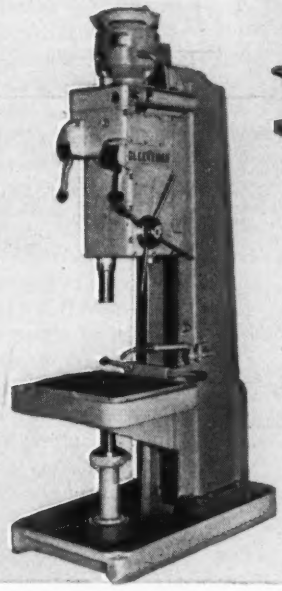
FOR SPEED — ACCURACY —ADAPTABILITY— LOW COST PRODUCTION



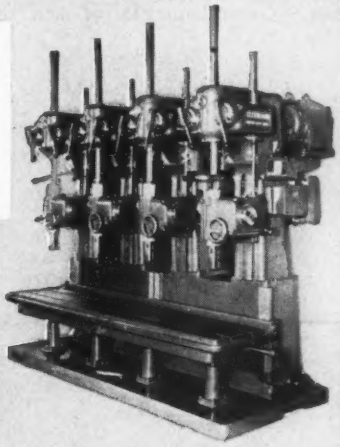
Cleereman Round Column Sliding Head Drilling Machines



Cleereman Box Column Sliding Head Drilling Machines



Cleereman No. 325 Single Unit Sliding Head Drilling Machine



Cleereman Multiple Drilling Machines

1908 - 1948 40th Anniversary CLEEREMAN MACHINE TOOL CO.

Cleereman builds a complete line of drilling machines for production work. All have won wide acceptance both here and abroad. All are noted for their high standards of performance, wide adaptability and extreme ease of operation.

The new No. 325 Single Unit Sliding Head Drilling Machine provides extreme sensitivity with rugged construction and is characterized by facility of control, exceptional flexibility and easy set-up.

Cleereman Round Column Sliding Head Drilling Machines are built in 25" and 30" sizes with a wide range of speeds and feeds. They are sturdy, precision built machines readily adapted to a wide variety of manufacturing operations.

Cleereman Box Column Sliding Head Drilling Machines in both 25" and 30" sizes have the stamina and accuracy necessary to meet the severest requirements of production work.

Cleereman Multiple Drilling Machines are available to meet individual production requirements for high speed production with accuracy and convenience.

Wire or write for Catalogs and complete specifications.

Address — BRYANT Machinery & Engineering Company
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CLEEREMAN MACHINE TOOL CO. Green Bay, Wis.

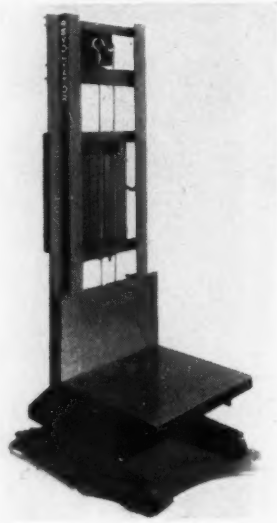
BUILDERS OF PRECISION JIG BORERS AND DRILLING MACHINES

sand on rail until wheel passes over it, thus avoiding waste and automatically stops flow of sand when crane stops. Crane track sander can be supplied on new as well as existing cranes.

Check No. 16 on Reply Card for more Details

Portable Elevator

Revolvator Co., North Bergen, N. J., is producing a light weight, hand operated portable elevator, the Uplifter. Rolling on Timken bearings, the elevator, built with Z-bar uprights, has a turning radius of 45 inches. Overall height of the machine is 77 inches and the height of lift is 62 inches. Platform is 24 inches square and the height when lowered is 4½ inches.



By lengthening of the hoisting cable, running it through a double sheave, the capacity may be increased from 500 to 1000 pounds. Crank handle pressure is the same. The lift is 2⅛ inches per turn of the crank for the 500 pound and 1 1/16 inches for the 1000 pound. Overall length is 40½ inches.

Check No. 17 on Reply Card for more Details

Lifting Magnet

Capsule-coil construction of the new lifting magnet announced by Cutler-Hammer Inc., 320 North 12th St., Milwaukee 1, Wis., encases the coil in an all metal, welded capsule from which all moisture is removed by a vacuum process prior to impregnating the coil with insulating compound under pressure. The capsule-coil constructed unit can be quickly removed and a spare replacement coil inserted to restore the magnet to service.

This feature is available in the 45, 55 and 65-inch magnet sizes made by the company. Pole shoes which can be removed after becoming worn from handling scrap pig iron and other loose materials are a feature of the magnets. Shoes are held in place by alloy bolts.

Check No. 18 on Reply Card for more Details

• • •

SHOCK ISOLATOR: Designed to control shock, isolate high frequency vibration and reduce noise transmittance to the floor, the Shockmount, made by Lord Mfg. Co., Erie, Pa., has a load capacity of up to 7500 pounds per mount. The flexing element of the 1 3/16-inch high unit is oil-resistant synthetic rubber.

Check No. 19 on Reply Card for more Details

CASTING PATCH: Howard Paint Division of Reconditioning Products, 5001 Denison Ave., Cleveland, O., is introducing Plastic Patch, for the repair of castings, heat ducts, water pipes and heating systems. Application consists of preparing surface, smoothing out plastic patching materials and spraying or brushing Howard New Metal over patch. The impregnated patch is both waterproof and rustproof.

Check No. 20 on Reply Card for more Details

OVERHEAD TRUCK GUARD: Constructed of heavy tubular arc welded steel, a canopy type overhead guard of power fork trucks made by Lewis-Shepard Products Inc., Watertown 72, Mass., offers protection to operator from falling objects. An expanded metal screen to fit over the horizontal portion of the guard is also available.

Check No. 21 on Reply Card for more Details

OIL RESISTANT LACQUER: A metal lacquer developed by Dennis Chemical Co., St. Louis, Mo., is for use where oil resistance, toughness and maximum adhesion are required. The No. 5062 lacquer will withstand 24-hour immersion in gasoline and 15-minute immersion in 275°F oil with no apparent deterioration in film strength or gloss. It is offered in various colors.

Check No. 22 on Reply Card for more Details

PANELBOARD: System of branch circuit terminal marking is incorporated in the circuit breaker "plug-in" panelboard designed by Square D Co., Detroit 11, Mich. The 3-phase 4-wire arrangement of the NMO panelboard eliminates doubt as to phase identification of branch circuits. A split-bus arrangement provides for distributed phasing of A and B circuits and group phasing of C circuits.

Check No. 23 on Reply Card for more Details

WATER EMULSION WAX: Application by dipping, spraying, wiping or flow coating of rust-inhibiting wax No. 1568, made by S. C. Johnson & Son Inc., Racine, Wis., forms a dry wax plating on the metal part which checks corrosion. The nonflammable and nontoxic wax covers between 2500 and 300 square feet per gallon. Degreasing removes it.

Check No. 24 on Reply Card for more Details

NEEDLE VALVE: Sensitive metering of fluids and gases is obtained with the micrometer needle valve designed by Parker Appliance Co., Cleveland 12, O. It has a 5/16-inch-40 stem threading for close adjustment and a long 10 degree included angle tapered needle for fine metering. Bodies are of high strength brass and aluminum alloy. Sizes of ⅛ and ¼-inch are offered, with eight port combinations available.

Check No. 25 on Reply Card for more Details

TIPPED DIE DRILLS: Hardened steel in the range of rockwell C 40-65 can be drilled, as can hardened dies without annealing, with the carbide tipped die drills, manufactured by Whitman & Barnes Division, United Drill & Tool Corp., Detroit 16, Mich. Offered in a range of sizes from 3/32 to ¾-inch by 32nds, the drills have a negative rake point to prevent chipping and to dissipate heat.

Check No. 26 on Reply Card for more Details

METAL CLEANERS: Calgon Inc., Pittsburgh, Pa., is announcing two new metal cleaners, effective individually or in combination for cleaning a variety of metals and alloys. No. 21 is a dry granular alkaline detergent for spray cleaning in metal washing machines. With Calgon emulsion cleaner, it is used for immersion cleaning in dip tanks and heavy duty spray cleaning. The latter, an organic solvent, reduces the viscosity of heavy oil and thereby aids emulsification.

Check No. 27 on Reply Card for more Details

FOR MORE INFORMATION
on the new products and equipment in this section, fill in a card. It will receive prompt attention.

Market Summary

PRICING—Steel buyers faced a new problem late last week—an imminent general steel price increase.

They were already perplexed with steel procurement problems and confusion stemming from the changeover to f.o.b. mill pricing. Not all steel producers had gone on an f.o.b. mill pricing basis; some which had said they would adopt such a system had not announced f.o.b. mill prices. Meanwhile U. S. Steel Corp. was formulating new steel prices to cover a new wage increase for steelworkers, higher coal costs, and increased freight rates. In addition, another railroad freight rate increase is expected soon.

Although U. S. Steel Corp. and Bethlehem Steel Corp. last week announced f.o.b. mill prices they were, with minor exceptions, unchanged from those prevailing under the abandoned multiple basing point pricing system. Recognizing a new wage increase to steelworkers along with other higher operating costs would necessitate an upward revision in steel prices, most other steel producers were delaying pricing policy and price announcements until the pattern had been set by U. S. Steel.

Move of the steel industry to abandon the historic multiple basing point pricing method and identical delivered prices was being looked upon with increasing concern, not only by steel buyers but also by other industries using similar pricing systems. There was growing belief economic disruption will be so great that congressional action to clarify the pricing situation will be hastened.

PRICES—While most steel companies were awaiting U. S. Steel's price increases, one company, important in alloy production, raised all of its steels 5 per cent after it gave its employees a 14-cent-an-hour wage increase. However, STEEL's composite prices remained unchanged last week and, compared with those for the like 1947 week, were: Finished steel $80.27 and $69.82 per ton, and semifinished steel, $68.62 and $52.10 per ton. STEEL's weighted composite price on finished steel for June was 3.58150c per lb (preliminary), compared with May's revised figure of 3.58321c.

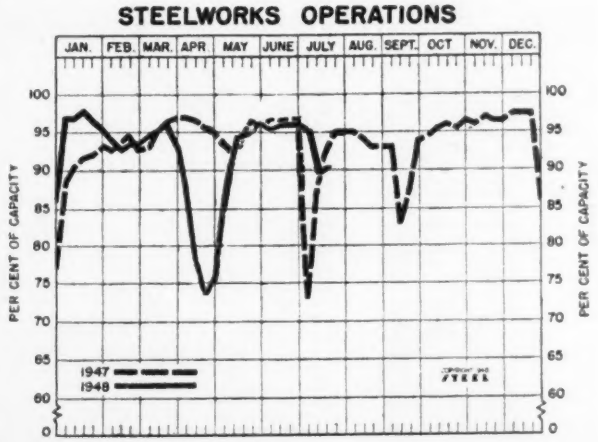
PRODUCTION—Regardless of the price confusion and the prospect of higher prices, consumers' greatest concern continues to be steel supply, rather than prices. Demand shows no sign of easing. Meanwhile, reduced mill shipments of finished steel are reflecting effects of coal miners' work stoppages. Steel ingot production which fell recently because of holidays, vacations and a coal miners' strike edged up 1½ points last week to 90.5 per cent of capacity, equivalent to 1,700,000 tons of ingots and castings.

PIG IRON—A leading merchant iron producer has increased pig iron prices $4 per gross ton. This pushed STEEL's arithmetical price composite on steelmaking pig iron up 25c last week to $40.74, compared with $39.92 in the corresponding week of 1947. Another unexpected blast furnace breakdown made the already tight merchant iron supply even more stringent.

COKE—Foundries not only faced bleak prospects with respect to pig iron supply but saw additional coke producers raise prices. The advances ranged from 75c to $1 a net ton, and reflected higher coal prices and wage increases to coke producers' employees.

SCRAP—The new inflationary wave and a reduced flow of iron and steel scrap are putting upward pressure on scrap prices. Generally, price quotations remain at formulas but considerable buying at over-the-formula price is reported. Reflecting this upward tendency, particularly in the East, STEEL's steelmaking scrap composite rose last week from $40.67 to $40.83. A year ago it was $36.08. Reported responsible for the smaller scrap flow are holidays, vacations in scrap-generating plants, reduced mill shipments of steel to such plants, and reduced country scrap collections during the harvest.

STEELWORKS OPERATIONS



DISTRICT STEEL RATES

Percentage of Ingot Capacity engaged in Leading Districts

	Week Ended July 17	Change	Same Week 1947	Same Week 1946
Pittsburgh	85	+ 2	98.5	98
Chicago	89	+ 1	90	91
Eastern Pa.	90	+ 5	94	85
Youngstown	94	— 0.5	80	87
Wheeling	92	+10.5	83.5	81.5
Cleveland	94.5	— 3	92	87
Buffalo	101	None	88.5	88.5
Birmingham	101	None	99	99
New England	83	+ 1	87	85
Cincinnati	98	— 4	87	77
St. Louis	82	+ 4	82	54.5
Detroit	100	— 1	92	83
Estimated national rate	90.5	+ 1.5	92.5	88

Based on weekly steelmaking capacity of 1,802,476 net tons for 1948; 1,749,928 tons for 1947; 1,762,381 tons for 1946.

News Summary—P. 59 *Engineering News—P. 89*

COMPOSITE MARKET AVERAGES

Arithmetical Price Composites*

	July 17	July 10	Month Ago June 1948	Year Ago July 1947	5 Years Ago July 1943
Finished Steel	$80.27	$80.27	$80.27	$70.80	$56.73
Semifinished Steel	68.62	68.62	68.62	53.04	36.00
Steelmaking Pig Iron	40.74	40.49	40.49	33.82	23.00
Steelmaking Scrap	40.83	40.67	40.67	37.23	19.17

FINISHED STEEL WEIGHTED COMPOSITE†

June 1948	3.58150c
May 1948	3.58321c
June 1947	3.12729c
June 1943	2.47708c

***STRAIGHT ARITHMETICAL COMPOSITES:** Computed from average industry-wide base prices on Finished Carbon Steel (hot-rolled sheets, cold-rolled sheets, cold-rolled strip, hot-rolled bars, plates, structural shapes, basic wire, standard nails, tin plate, standard and line pipe), on Semifinished Carbon Steel (re-rolling billets and slabs, sheet bars, skelp, and wire rods), on Basic Pig Iron (at eight leading basing points), and on Steelworks Scrap (No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania). Steel arithmetical composites, dollars per net ton; pig iron and scrap, gross ton.

†**FINISHED STEEL WEIGHTED COMPOSITE:** Computed in cents per pound, base prices, weighted by actual monthly shipments of following products, representing about 82 per cent of steel shipments in the latest month for which statistics are available, as reported by American Iron & Steel Institute: Structural shapes; plates, standard rails; hot and cold-finished carbon bars; black butt weld pipe and tubes; black lap weld pipe and tubes; black electric weld pipe and tubes; black seamless pipe and tubes; drawn wire; nails and staples; tin and terne plate; hot-rolled sheets; cold-rolled sheets; galvanized sheets; hot-rolled strip; and cold-rolled strip. June, 1948, figure is preliminary.

COMPARISON OF PRICES

Representative market figures for current week; average for last month, three months and one year ago. Finished material (except tin plate) and wire rods, cents per lb; semifinished (except wire rods) and coke, dollars per net ton; others dollars per gross ton.

Finished Materials

	July 17, 1948	June 1948	Apr. 1948	July 1947
Steel bars, Pittsburgh	2.875c	2.875c	2.90c	2.66c
Steel bars, del. Philadelphia	3.365	3.365	3.356	2.98
Steel bars, Chicago	2.875	2.875	2.90	2.66
Shapes, Pittsburgh	2.775	2.775	2.80	2.56
Shapes, del. Philadelphia	2.98	2.98	2.968	2.64
Shapes, Chicago	2.775	2.775	2.80	2.56
Plates, Pittsburgh	2.925	2.925	2.95	2.71
Plates, del. Philadelphia	3.21	3.21	3.19	2.85
Plates, Chicago	2.925	2.925	2.95	2.71
Sheets, hot-rolled, Pittsburgh	2.775	2.775	2.80	2.56
Sheets, cold-rolled, Pittsburgh	3.50	3.50	3.55	3.27
Sheets, No. 10 galv., Pittsburgh	3.90	3.90	3.95	3.63
Sheets, hot-rolled, Gary	2.775	2.775	2.80	2.56
Sheets, cold-rolled, Gary	3.50	3.50	3.55	3.27
Sheets, No. 10 galv., Gary	3.90	3.90	3.95	3.63
Strip, hot-rolled, Pittsburgh	3.05	3.05	3.05	2.56
Strip, cold-rolled, Pittsburgh	3.775	3.775	3.80	3.27
Bright basic, bess, wire, Pittsburgh	3.725	3.725	3.775	3.475
Wire nails, Pittsburgh	5.125	5.125	5.20	3.975
Tin plate, per base box, Pittsburgh	$6.60	$6.60	$6.70	$5.75

Semifinished

Sheet bars, Pittsburgh, Chicago	$60.00	$60.00	$60.00	$47.50
Slabs, Pittsburgh, Chicago	45.00	45.00	45.00	38.92
Rerolling billets, Pittsburgh	45.00	45.00	45.00	38.92
Wire rod 7/32 to 1/4-inch, Pitts.	3.175c	3.175c	3.175c	2.63c

Pig Iron

	July 17, 1948	June 1948	Apr. 1948	July 1947
Bessemer, del. Pittsburgh (N.&S. sides)	$44.08	$44.08	$40.996	$36.03
Basic, Valley	39.00	39.00	39.00	34.20
Basic, eastern del. Philadelphia	42.17	42.17	42.004	36.47
No. 2 fdry., del. Pgh. (N.&S. sides)	43.58	43.58	40.496	35.53
No. 2 fdry., del. Philadelphia	42.67	42.67	42.504	37.21
No. 2 foundry, Chicago	41.00	39.00	39.00	34.20
No. 2 foundry, Valley	39.50	39.50	39.50	34.70
Southern No. 2, Birmingham	39.38	39.38	37.88	31.98
Southern No. 2, del. Cincinnati	45.09	45.09	42.23	36.85
Malleable, Valley	39.50	39.50	39.50	34.70
Malleable, Chicago	41.50	39.50	39.50	34.70
Charcoal, low phos., fob Lyles, Tenn.	58.00	58.00	55.00	43.00
Ferromanganese, fob cars, Pittsburgh	151.00	151.00	151.00	140.25

Scrap

Heavy melt. steel, No. 1, Pittsburgh	$40.25	$40.25	$40.25	$37.20
Heavy melt. steel, No. 2, E. Pa.	39.00	39.00	39.00	38.06
Heavy melt. steel, No. 1 Chicago	39.25	39.25	39.10	35.95
Heavy melt. steel, No. 1, Valley	40.25	40.25	40.25	37.35
Heavy melt. steel, No. 1, Cleveland	39.75	39.75	39.75	37.65
Heavy melt. steel, No. 1, Buffalo	44.00	43.00	43.00	37.90
Rails for rerolling, Chicago	54.50	53.75	49.50	43.20
No. 1 cast, Chicago	68.50	68.38	68.40	41.10

Coke

Connellsville, beehive furnace	$13.00	$13.00	$12.55	$11.20
Connellsville, beehive foundry	15.50	15.22	14.875	13.05
Chicago, oven foundry, del.	20.80	20.80	19.25	17.46

FINISHED AND SEMIFINISHED IRON, STEEL PRODUCTS

Finished steel quoted in cents per pound and semifinished in dollars per net ton, except as otherwise noted. Prices apply on an individual producer basis to products within the range of sizes, grades, finishes and specifications produced at its plants. Delivered prices do not include the 3 per cent federal tax on freight.

Semifinished Steel

Carbon Steel Ingots: Rerolling quality, standard analysis, open market, $90-$95 per gross ton. Forging quality $46 per net ton, Pittsburgh, Chicago, Gary, Cleveland, Birmingham, Buffalo, Youngstown.

Alloy Steel Ingots: Pittsburgh, $56 per gross ton.

Rerolling Billets, Blooms, Slabs: Pittsburgh, Chicago, Gary, Buffalo, Birmingham, $45 per net ton; Cleveland, $47 per net ton; sales by smaller interests on negotiated basis at $85 per gross ton, or higher.

Forging Quality Billets, Blooms, Slabs: Pittsburgh, Chicago, Gary, Cleveland, Buffalo, Birmingham, $54 per net ton.

Alloy Billets, Slabs, Blooms: Pittsburgh, Chicago, Buffalo, Bethlehem, Canton, Massillon, $66 per gross ton.

Sheet Bars: Pittsburgh, Chicago, Cleveland, Buffalo, Canton, Youngstown, $60 nom., per net ton; sales in open market $95-$105 per gross ton.

Skelp: Pittsburgh, 2.85-2.90c; Youngstown, 2.90c per lb.

Tube Rounds: Pittsburgh, Chicago, Gary, Cleveland, $69-70 per net ton; some sellers quoting up to $120 per gross ton.

Wire Rods: Pittsburgh, Chicago, Birmingham, 7/32 to 1/4-in., inclusive, $2.80-3.55 per 100 lb. 5/16 to 47/64-in., inclusive, $2.75, Cleveland; Galveston, $2.95; Worcester, $2.90-2.95. San Francisco (base del.), $3.5245.

Bars

Hot-Rolled Carbon Bars (O.H. only) and Bar-Size Shapes under 3-in. (Base 20 tons one size): Pittsburgh, Youngstown, Chicago, Gary, Birmingham, 2.85-2.90c; Cleveland, Buffalo, 2.90c; Detroit, del., 3.11c; eastern Mich., 3.18c; New York, del., 3.43c; Phila., del., 3.34-3.39c; San Francisco (base, del.), 3.5845-3.95c; Los Angeles (base, del), 3.579-3.86c; Seattle, 3.8375-3.85c, base.

> Companies producing a major portion of steel products are now selling on a straight f.o.b. mill or shipping point basis. Other companies which are expected to adopt this policy have not yet done so. Prices quoted on these pages are those which were in effect prior to the changeover.

Reinforcing Bars (New Billet): Pittsburgh, 2.70-2.75c; Chicago, Gary, Youngstown, Birmingham, 2.70c; Sparrows Point, Buffalo, base 2.75c; San Francisco (base, del.), 3.3345c; Los Angeles (base, del.), 3.329c; Seattle, 3.88c-4.18c base.

Iron Bars: Single refined: Pittsburgh 7.70c (hand puddled), Economy, Pa., 8.65c. Double refined: Pittsburgh 9.75c (hand puddled), Economy, Pa., 10.00c. Staybolt: Pittsburgh 11.25c (hand puddled), Economy, Pa., 10.20c.

Sheets

Hot-Rolled Sheets (18 gage and heavier): Pittsburgh, Chicago, Gary, Birmingham, Youngstown, 2.75-2.80c; Cleveland, Buffalo, Sparrows Point, Ashland, Ky., base, 2.80c; Detroit, del., 3.01c; eastern Mich., del., 3.08c; Philadelphia, del., 3.06c; New York, del., 3.18c; Los Angeles (base, del.), 3.494-3.544c; San Francisco, (base, del.) 3.4995-3.5495c. (Alan Wood Steel Co., Conshohocken, Pa., quotes 4.20c, Sparrows Point equivalent).

Cold-Rolled Sheets: Pittsburgh, Chicago, Gary, 3.45-3.55c; Cleveland, Middletown, 3.50-3.55c; Buffalo, Youngstown, Sparrows Point, 3.55c; Granite City, 3.65c; Detroit, del., 3.66-3.76c; eastern Mich., del., 3.73-3.83c; New York, del., 3.93c; Philadelphia, del., 3.81c.

Galvanized Sheets, No. 10: (Based on 5 cent zinc) Pittsburgh, Gary, Birmingham, 3.85-3.95c; Chicago, Sparrows Point, Canton, Middletown, 3.95c; Kokomo, 4.55c; Youngstown, 3.95-4.45c; Granite City, 4.05c; New York, del., 4.33c; Philadelphia, del., 4.21c; Los Angeles (base, del.), 4.624c; San Francisco (base, del.), 4.6295c.

Culvert Sheets, No. 16 flat (based on 5-cent zinc; corrugated 10 cents extra): Copper alloy: 4.45-4.55c, Pittsburgh, Gary; 4.55c Chicago; 4.90c, Kokomo; 5.00c, Granite City; 5.344c (base del.), Los Angeles; 5.3495c (base del.), San Francisco.

Copper-iron or pure iron: 4.80-4.90c, Pittsburgh; 4.80c, Gary, 4.90c, Chicago, Kokomo, Canton; 5.35c, Granite City.

Aluminized Sheets: Hot-dipped, coils or cut to lengths: Pittsburgh, 7.50c.

Long Ternes, No. 10: Pittsburgh, Chicago, Gary, base, 4.05c.

Enameling Sheets, No. 12: Pittsburgh, 3.85-3.95c; Chicago, Gary, 3.75-3.95c; Cleveland, Middletown, 3.85c; Youngstown 3.95c-4.45c; Granite City, 4.05c; Detroit, del., 4.16c; eastern Mich., 4.23c.

Electrical Sheets, No. 24: Field: Pittsburgh, Chicago, Gary, 4.40-4.50c; Kokomo, Ind., 4.60c. Armature: Pittsburgh, 4.70-5.30c; Chicago, Gary, 4.70-4.80c; Granite City, Ill., 5.25c; Kokomo, Ind., 4.90c. Electrical: Pittsburgh, 5.20-5.80c; Chicago, Gary, 5.20-5.30c; Granite City, Ill., 5.75c; Kokomo, Ind., 5.40c. Motor: Pittsburgh, 5.95-6.80c; Chicago, Gary, 5.95-6.05c; Granite City, 6.50c. Dynamo: Pittsburgh, 6.65-7.00c; Granite City, 7.20c. Transformer 72, 7.15-8.25c; 65, 7.85-9.20c; 58, 8.55-9.90c; 52, 9.35-9.45c, Pittsburgh.

Strip

Hot-Rolled Strip: Pittsburgh, 2.80c-3.30c; Chicago, Gary, Birmingham, Youngstown, Cleveland, 2.75-2.80c; Detroit, del., 3.01c; eastern Mich., del., 3.08c; San Francisco (base, del.) 3.5595c; Los Angeles (base, del.), 3.554c.
Cold-Rolled Strip: 0.25 carbon and less: Pittsburgh, 3.50-4.05c; Cleveland, 3.45-3.85c; Youngstown, 3.55-3.85c; Chicago, Gary, 3.55-3.65c. Detroit, del. 3.66-3.76c; eastern Mich., 3.73-3.83c; Worcester, base, 3.65-3.75c.
Cold-Finished Spring Steel: Cleveland base: 0.26-0.40 carbon, 3.55c; over 0.40 to 0.60 carbon, 4.95-5.05c; over 0.60 to 0.80, 5.55-5.65c; over 0.80 to 1.05, 7.05-7.15c; over 1.05 to 1.35, 9.35-9.45c; add 0.20c for Worcester.

Tin, Terne Plate

Tin Plate: Pittsburgh, Chicago, Gary, per base box of 100 lb, 1.25 lb coating $6.50, 1.50 lb coating $6.70; Sparrows Point, Birmingham and Warren, O., $6.60 and $6.80, respectively; Granite City, $6.70 and $6.90, respectively.
Electrolytic Tin Plate: Pittsburgh, Gary, per base box of 100 lb, 0.25 lb tin, $5.70; 0.50 lb tin, $5.90; 0.75 lb tin $6.10; Sparrows Point, Birmingham and Warren, O., $5.80, $6.00, $6.20, respectively; Granite City, $5.90, $6.10, $6.30, respectively.
Can Making Black Plate: Pittsburgh, Gary, per base box of 100 lb, 55 to 70 lb basis weight, $5.10; 75 to 95 lb basis weight, $5.00; 100 to 128 lb basis weight, $5.10. Birmingham and Warren, O., $5.20, $5.10, $5.20, respectively.
Holloware Enameling Black Plate: Pittsburgh, Chicago, Gary, base 29-gage, 4.65c per lb; Sparrows Point, Warren, O., 4.75c; Granite City, 4.85c.
Manufacturing Ternes (Special Coated): Pittsburgh, Chicago, Gary, per base box of 100 lb, $5.80; Birmingham, Sparrows Point, $5.90; Granite City, $6.
Roofing Ternes: Pittsburgh, per package 112 sheets; 20 x 28 in., coating I.C. 8-lb $15.30.

Plates

Carbon Steel Plates: Pittsburgh, Chicago, Gary, Birmingham, Youngstown, 2.90-2.95c; Cleveland, Sparrows Point, 2.95c; Coatesville, 3.45c; Claymont, 3.65c; Geneva, Utah, 2.90c; Det., del., 3.21c; New York, del., 3.33c; Phila., del., 3.21c; Boston, del., 3.51c; St. Louis, del., 3.269c; San Francisco and Los Angeles, del., 3.493c for sizes and grades produced at Geneva; 3.76c for sizes and grades produced at Fontana, Calif.
(Central Iron & Steel Co., Harrisburg, Pa., 5.10c, basing points.)
Floor Plates: Pittsburgh, 4.05c; Chicago, 3.95-4.05c; Gary, 3.95c; Cleveland, 4.05-4.20c.
Open-Hearth Alloy Plates: Pittsburgh, Chicago, Gary, 3.70c; Coatesville, 4.80c.
Clad Steel Plates: Coatesville, 10% cladding: Nickel clad, 21.50c; inconel-clad, 30.00c; monel-clad, 24.00c.
Wrought Iron: Economy, Pa., 7.25c.

Shapes

Structural Shapes: Pittsburgh, Chicago, Gary, Birmingham, 2.75-2.80c; Buffalo, Bethlehem, 2.80c; New York, del., 3.06c; Phila., del., 2.98c; Geneva, Utah, 2.75c; Los Angeles (base, del.), 3.424-3.474c for sizes produced at Torrance, Calif.; Los Angeles and San Francisco, del., 3.343c for sizes produced at Geneva, 3.81c for sizes produced by Bethlehem in East; San Francisco, del., 3.54c for sizes produced at Fontana, Calif.
Beams, Wide Flange: Pittsburgh, Chicago, 2.70c.
Alloy Structural Shapes: Pittsburgh, Chicago, Gary, 3.45-3.55c.
Steel Piling: Pittsburgh, Chicago, Buffalo, $3.30 per 100 lb.

Wire and Wire Products

(Fob Pittsburgh, Chicago, Cleveland and Birmingham per 100 pounds.)
Wire to Manufacturers in carloads
Bright, basic or bessemer..... *$3.45-4.00
Basic MB Spring (except Birm.).. **$4.85-4.95
Upholstery Spring (except Birm.) †$4.50-4.60
Wire Products to Trade in carloads
Wire, Merchant Quality
Annealed (6 to 8 base).....††$4.10-4.20
Galvanized (6 to 8 base).....††$4.55-4.65
(Fob Pittsburgh, Chicago, Duluth, Birmingham, per base column).
Nails
Standard, cement-coated, galvanized.. ‡91-94
Staples, polished and galvanized..... ‡‡91-94
Woven fence, 15½ gage and heavier. §97-100
Barbed wire, 80-rod spool .....§§111-113
Fence Posts (with clamps)..... ★107
Bale ties, single loop .....★★94-100

* Worcester, $3.55; Duluth, $3.50; San Francisco (base, del.) $4.4645 bright basic only.
** Worcester, $4.95; Duluth & Trenton, N.J., $5.10 (bright only); San Francisco (base del.) $5.8845.
† Worcester $4.60; Duluth and Trenton, N. J., New Haven, Conn., $4.75; San Francisco (base, del.), $5.5345 black upholstery.
†† One producer quotes annealed, 4.45c, galvanized, 4.90c, Birmingham and Chicago; Worcester $4.20 annealed, $4.65 galvanized; Duluth $4.10 annealed, $4.55 galvanized; Kokomo, Ind., $4.80 annealed, $5.25 galvanized; San Francisco (base, del.) $5.1145 annealed, $5.5645 galvanized.
‡ Cols. 108 and 114 also quoted Pittsburgh; Worcester, Cleveland 97; Duluth, 91; San Francisco (base, del.) 112.
‡‡ Cols. 108 and 114 also quoted Pittsburgh; Worcester 97; San Francisco (base del.) 112.
§ Col. 101 also quoted at Pittsburgh; San Francisco (base del.) 120.
§§ San Francisco (base del.) 131.
★ Duluth, 104.
★★ San Francisco (base del.) 118; Chicago, Birmingham, 94-99.

Rails, Supplies

Rails: Standard, over 60-lb fob mill, $2.70-$2.75 per 100 lb. Light rails (billet), Pittsburgh, Birmingham, $3.05 per 100 lb; light rails (rail-steel), prices upon application. Relaying, 60 lb and over fob warehouse $60-$65 per net ton.
Supplies: Track bolts, 7.00c; heat treated, 7.25c. Tie plates $3.55-$3.65 per 100 lb, fob mill; $3.40 base. Seattle; $3.70 fob Pittsburg, Calif. Splice bars $3.75-$3.85 per 100 lb fob mill. Standard spikes, 4.85c; screw spikes, 6.75c. Axles 4.45-4.50c.

Tubular Goods

Standard Steel Pipe: Base price in carlots, threaded and coupled, to consumers about $200 a net ton Base discounts Pittsburgh on all types; Lorain on steel butt weld, and seamless; Gary, Ind., 2 points less on steel lap weld and 1 to 2 points less on steel butt weld on sizes produced in that district.

In.	Butt Weld Blk.	Butt Weld Gal.	In.	Blk.	Gal.
⅛	44½	17	1	52½–53½	36½–37½
¼	44½	21½	1¼	53–54	37–38
⅜	41	17	1½	53½–54½	37½–38½
½	47–48	29½–30½	2	54–55	38–39
¾	50–51	33½–34½	2½, 3..	54½–55½	38½–39½

In.	Lap Weld Blk.	Lap Weld Gal.	Elec. Weld Blk.	Elec. Weld Gal.	Seamless Blk.	Seamless Gal.
2	44½	28	44	27½	43½	27
2½ & 3	48½	32	47	30½	46½	30
3½-6	50½	34	49	32½	48½	32

Line Steel Pipe: Base price in carlots to consumers about $200 a net ton. Base discounts Pittsburgh and Lorain, O.

In.	Butt Weld	In.	Butt Weld
⅛	43½	1	51½-52½
¼	43½	1⅓	52-53
⅜	40	1½	52½-53½
½	46–47	2	53-54
¾	49–50	2½ & 3	53½-54½

In.	Lap Weld	Elec. Weld	Seamless
2	43½	43	42½
2½ & 3	46½	46	45½
3½-6	48½	48	47½
8	50½	50	49½
10	50	49½	49
12	49	48½	48

Standard Wrought Iron Pipe: Base price in carlots, threaded and coupled, to consumers about $200 a net ton. Base discounts Pittsburgh.

In.	Butt Weld Blk.	Butt Weld Gal.	In.	Lap Weld Blk.	Lap Weld Gal.
⅜	+46½	+74½	1¼	+12	+34½
½	+11	+35	1½	+ 6	+27½
¾	+ 1½	+25	2	— 1½	+20
1 and 1¼	— 4	+16½	2½-3½	— 4	+16
1½	— 9½	+13	4	— 8	+10½
2	—10	+12½	4½-8.	— 6	+12
			9-12	+ 3	+21½

Boiler Tubes: Net base c.l. prices, dollars per 100′, fob Pittsburgh; minimum wall thickness, cut lengths 4 to 24″, inclusive.
Prices effective as of May 1, 1948.

O.D. In.	B.W. Ga.	Hot Rolled (Seamless)	Cold Drawn (Seamless)	Hot Rolled (Elec. Weld)	Cold Drawn (Elec. Weld)
1	13	.....	12.21-12.46	11.51	11.51
1¼	13	.....	14.46-14.76	11.48	13.64
1½	13	13.72-14.00	16.14-16.47	12.69	15.22
1¾	13	15.60-15.92	18.37-18.74	14.43	17.31
2	13	17.48-17.84	20.57-20.99	16.17	19.39
2¼	13	19.48-19.88	22.93-23.40	18.02	21.62
2½	12	21.46-21.90	25.25-25.77	19.86	23.80
2½	12	23.51-23.99	27.65-28.21	21.75	26.06
2¾	12	24.91-25.42	29.30-29.90	23.05	27.63
3	12	26.15-26.68	30.77-31.40	24.18	29.00
3¼	11	30.44-31.06	35.82-36.55	28.16	33.77
3½	11	32.68-33.35	38.47-39.26	30.23	36.27
4	10	40.57-41.40	47.73-48.70	37.53	44.99
4½	9	53.77-54.87	63.29-64.58	....	....
5	9	62.25-63.52	73.25-74.74	....	....
6	7	95.56-97.51	112.44-114.73	....	....

Pipe Cast Iron: Class B, 6-in. and over $79.50 per net ton, Birmingham; $84.50, Burlington, N. J.; $91.12, del. Chicago; 4-in. pipe, $5 higher; class A pipe, $5 a ton over Class B.

Bolts, Nuts

Fob Pittsburgh, Cleveland, Birmingham, Chicago; add 19c per cwt in carlots, Lebanon, Pa. Additional discounts: 5 for carloads; 15 for full containers, except tire, step, plow bolts.

Carriage and Machine Bolts

½-in. and smaller; up to 6 in. in length	45 off
⅝ and ⅝ x 6-in. and shorter.....	46 off
¾-in. and larger x 6-in. and shorter.	43 off
All diameters longer than 6-in.....	41 off
Tire bolts	35 off
Step bolts	43 off
Plow bolts	54 off
Lag bolts, 6 in. and shorter.....	46 off
Lag bolts, longer than 6 in.....	44 off

Stove Bolts

In packages, nuts separate, 65-10 off; bulk 75 off on 15,000 of 3-in. and shorter, or 5000 over 3 in., nuts separate.

Nuts

Semifinished hexagon	A.S. Light	A.S. Reg. and Heavy
7/16-in. and smaller.....	46 off	.....
½-in. and smaller.....	.....	44 off
½-in.-1-in.	44 off	.....
⅝-in.-1-in.	.....	43 off
1⅛-in.-1½-in.	42 off	41 off
1⅝-in. and larger.....	.....	35 off

Additional discount of 15 for full containers.

Hexagon Cap Screws (Packaged)

Upset 1-in. smaller by 6-in. and shorter (1020 bright).....	53 off
Upset (1035 heat treated)	
⅝ and smaller x 6 and shorter.....	48 off
¾, ⅞, & 1 x 6 and shorter.....	44 off

Square Head Set Screws

Upset 1-in. and smaller.....	57 off
Headless, ¼-in. and larger	40 off
No. 10 and smaller	52 off

Rivets

Fob Pitts., Cleve., Chicago, Birmingham
Structural ½-in. and larger..... 5.65c
Fob Lebanon, Pa.
Structural ½-in. and larger..... 5.65c*
7/16-in. and larger ..... 55 off*

* Plus 19c per cwt in cl; 26c in lcl.

Washers, Wrought

Fob Pitts., Chicago, Philadelphia, to jobbers and large nut and bolt mfrs.....$1-$2 off

Tool Steels

Tool Steels: Pittsburgh, Bethlehem, Syracuse, Canton, O., Dunkirk, N. Y., base, cents per lb; reg. carbon 17.00c; extra carbon 20.00c; special carbon 24.00c; oil-hardening 26.00c; high carbon-chromium 47.00c.

W	Cr	V	Mo	Base Per lb
18.00	4	1	...	82.00c
1.5	4	1	8.5	59.00c
12	3	0.50	...	67.00c
6.40	4.15	1.90	5	63.00c
5.50	4.50	4	4.50	80.00c

Stainless Steels

Base, cents per lb, Pittsburgh, Chicago, Cleveland, Bethlehem, Canton, Massillon, Middletown, Watervliet, Dunkirk, Syracuse, Reading, Ft. Wayne, Titusville, Brackenridge, Jersey City, W. Leechburg, Baltimore and Washington, Pa.

Grade	Bars, Wire, Shapes	Plate	Sheets	Hot Rolled Strip	Cold Rolled Strip
CHROMIUM NICKEL STEELS					
301....	26.00c	29.50c	37.00c	22.00c	28.00c
302....	26.00	29.50	37.00	23.50	30.50
303....	28.50	31.50	39.00	29.50	36.00
304....	27.50	31.50	39.00	25.50	32.50
308....	31.50	37.00	44.50	31.00	38.00
309....	39.00	43.50*	51.00*	40.50	51.00
310....	53.50	56.50†	57.50‡	53.00	61.00
316....	43.50	48.00	52.00	43.50	52.00
321....	31.50	37.00	44.50	32.00	41.50
347....	36.00	41.50	49.00	36.00	45.50
431....	21.00	24.00	31.50	19.00	24.50
440A ..	26.00	31.00	36.50	26.00	30.50
STRAIGHT CHROMIUM STEEL					
410....	20.50	23.50	29.00	18.50	24.00
416....	21.00	24.00	29.50	20.00	25.50
420....	26.00	31.00	36.50	26.00	39.50
430....	21.00	24.00	31.50	19.00	24.50
430F ..	21.50	24.50	32.00	20.50	27.00
442, 443	24.50	28.00	35.50	26.00	35.00
446....	30.00	33.00	39.50	38.00	56.50
§501...	9.00	13.00	17.50	13.00	18.50
§502...	10.00	14.50	18.50	14.50	19.50
STAINLESS CLAD STEEL (20%)					
304....	....	24.00	22.00	....	....
410....	....	22.00	20.00	....	....
430....	....	22.50	20.50	....	....
446....	....	29.00	27.00	....	....

One producer quotes: * 6.50c higher, † 3.50c higher, ‡ 10.00c higher. § Low chromium.
** Fob Pittsburgh, Washington and Coatesville, Pa.; plate prices include annealing, pickling.

RAW MATERIAL AND FUEL PRICES

Minimum delivered prices do not include 3 per cent federal tax.

Pig Iron

Per Gross Ton

	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa., base	$40.00	$40.50	$41.00	$41.50
Newark, N. J., del.	42.39	42.89	43.39	43.89
Brooklyn, N. Y., del.	....	44.40	44.90	....
Philadelphia, del.	42.17	42.67	43.17	43.67
Birmingham, base	38.88	39.38	....	....
Cincinnati, del.	....	45.09	....	....
Buffalo, base	40.00†	40.00†	40.50†	41.00
Boston, del.	48.42	48.42	48.92	....
Rochester, del.	42.22	42.22	42.72	43.22
Syracuse, del.	43.025	43.025	43.525	44.025
Chicago, base	38.50-42.50	39.00-43.00	39.50-43.50	40.00-44.00
Milwaukee, del.	40.22-44.22	40.72-44.72	41.22-45.22	41.72-45.72
Muskegon, Mich., del.	.....	43.97-47.98	44.48-48.48	.....
Cleveland, fob furnace	38.50†	39.00†	39.50†	40.00
Akron, del.	40.67	41.17	41.67	42.17
Duluth, base	43.00	43.50	43.00	43.50
Erie, Pa., base	42.50	43.00	43.50	43.00
Everett, Mass., base	....	48.75	49.25	....
Granite City, Ill., base	45.25	45.75	46.25	....
St. Louis, del.	46.00	46.50	47.00	....
‡Neville Island, Pa., base	42.00	42.50	42.50	43.00
Pittsburgh, del., N.&S. Sides	43.08	43.58	43.58	44.08
Provo, Utah, base	39.00	39.50	....	....
Seattle, Tacoma, Wash., del.	....	46.63	....	....
Portland, Oreg., del.	....	46.63	....	....
Los Angeles, San Francisco.	46.13	46.63	....	....
Sharpsville, Pa., base	43.00	43.50	43.50	43.00
Steelton, Pa., base	40.00	40.50	41.00	41.50
Struthers, O., base	42.50	....	....	....
Swedeland, Pa., base	45.00	45.50	46.00	46.50
Toledo, O., base	42.50	43.00	43.50	43.00
Cincinnati, del.	47.05	47.55	....	....
Youngstown, O., base	39.00	39.50	39.50	40.00
Mansfield, O.	42.87	43.37	43.37	43.87

† Republic Steel Corp. quotes $2.875 higher for No. 2 foundry and malleable and $2.375 higher for basic at Buffalo, and $1.25 higher at Cleveland, effective on shipments during week ended July 18.

‡ To Neville Island base add: $0.86 for McKees Rocks, Pa.; $1.31 Lawrenceville, Homestead, McKeesport, Monaco; $1.73 Verona; $1.94 Brackenridge; $1.08 to Ambridge and Aliquippa.

Blast Furnace Silvery Pig Iron

6.00-6.50 per cent Si (base).$53.50
6.51-7.00..$54.75 9.01- 9.50. 61.00
7.01-7.50.. 56.00 9.51-10.00. 62.25
7.51-8.00.. 57.25 10.01-10.50. 63.50
8.01-8.50.. 58.50 10.51-11.00. 64.75
8.51-9.00.. 59.75 11.01-11.50. 66.00

Fob Jackson, O., per gross ton. Buffalo base $1.25 higher. Buyer may use whichever base is more favorable.

Bessemer Ferrosilicon

Prices same as for blast furnace silvery iron, plus $1 per gross ton.

Electric Furnace Silvery Pig Iron Si 14.01-14.50%, $78.75, Niagara Falls; $78 open-hearth and $79 foundry grade, Keokuk, Iowa. Add $1 a ton for each additional 0.5% Si to 18%; 50c for each 0.05% Mn over 1%; $1 a ton for 0.045% max. phos.

Charcoal Pig Iron

Semi-cold blast, low phosphorus. Fob furnace, Lyles, Tenn.....$58 (For higher silicon iron a differential over and above the price of base grade is charged as well as for the hard chilling iron, Nos. 5 and 6.)

Gray Forge

Neville Island, Pa. $42.00

Low Phosphorus

Steelton, Pa., Buffalo, Troy, N. Y., $46.00. Philadelphia, $48.81, delivered. Intermediate phosphorus, Central furnace, Cleveland, $42.00.

Differentials

Basing point prices are subject to following differentials:

Silicon: An additional charge of 50 cents a ton for each 0.25 per cent silicon in excess of base grade (1.75% to 2.25%).

Phosphorus: A reduction of 38 cents a ton for phosphorus content of 0.70 per cent and over.

Manganese: An additional charge of 50 cents a ton for each 0.50 per cent, or portion thereof, manganese in excess of 1%.

Nickel: An additional charge for nickel content as follows: Under 0.50%, no extra; 0.50% to 0.74%, inclusive, $2 a ton; for each additional 0.25% nickel, $1 a ton.

Metallurgical Coke

Price per Net Ton

Beehive Ovens

Connellsville, furnace	$12.00-$14.00†
Connellsville, foundry	14.50- 16.50†
New River, foundry	15.50
Wise county, foundry	14.25
Wise county, furnace	13.50

† Nominal.

Oven Foundry Coke

Kearney, N. J., ovens	$21.50
Chicago, outside del.	19.50
Chicago, del.	20.80
Terre Haute, ovens	21.00
Milwaukee, ovens	20.25
New England, del.	22.75
Birmingham, del.	16.71
Indianapolis, ovens	20.85
Cincinnati, del.	20.50
Ironton, O., ovens	18.25
Erie, Pa., del.	22.45
Painesville, O., ovens	20.90
Cleveland, del.	22.45
Buffalo, del.	23.10
Detroit, del.	21.65
Philadelphia, ovens	19.55
Swedeland, Pa., ovens.	19.50
Portsmouth, O., ovens.	18.25

Coal Chemicals

Spot, cents per gallon

Pure and 90% benzol	21.00†
Toluol, two degrees	28.00
Industrial xylol	28.00
Solvent naphtha	28.00

Per pound fob works

Phenol (car lots, returnable drums)	13.00
Do., less than carlots	13.75
Do., tank cars	12.00

Eastern plants, per pound

Naphthalene flakes, balls, bbl. to jobbers, "household use"	12.00

Per ton, bulk, fob plants

Sulphate of ammonia	$40.00

† Freight allowed up to 2 cents.

Refractories

(Base prices per 1000, fob plant)

Fire Clay Brick

Super Duty: St. Louis, Vandalia, or Farber, Mo., Olive Hill, Ky., Clearfield, or Curwensville, Pa., $100.

High-Heat Duty: Salina, Pa., $85; Woodbridge, N. J., $86; St. Louis, or Farber, Vandalia, Mo., West Decatur, Orviston, Clearfield, Beach Creek, or Curwensville, Pa., Olive Hill, Hitchins, Haldeman, or Ashland, Ky., Troup, or Athens, Tex., Stevens Pottery, Ga., Portsmouth, or Oak Hill, O., $80.

Intermediate-Heat Duty; St. Louis, or Vandalia, Mo., West Decatur, Orviston, Beach Creek, or Clearfield, Pa., Olive Hill, Hitchins, Haldeman, or Athens, Ky., Troup, Tex., Stevens Pottery, Ga., or Portsmouth, O., $74.

Low-Heat Duty: Oak Hill, or Portsmouth, O., Clearfield, Pa., Bessemer, Ala., $66.

Ladle Brick

Dry Press: $50.
Wire Cut: $48.

Malleable Bung Brick

St. Louis, Mo., Olive Hill, Ky., $83; Beach Creek, Pa., $73.

Silica Brick

Mt. Union, Claysburg, or Sproul, Pa., Ensley, Ala., $80; Hays, Pa., $85; Joliet or Rockdale, Ill., $89; Lehi, Utah, Los Angeles, $95.

Eastern Silica Coke Oven Shapes: Claysburg, Mt. Union, Sproul, Pa., $80.

Illinois Silica Coke Oven Shapes: Joliet or Rockdale, Ill., $81.

Basic Brick

(Base prices per net ton; f.o.b. works, Baltimore or Chester, Pa.)

Chrome brick or chemical-bonded chrome brick, $69, magnesite brick, $91; chemical-bonded magnesite, $80.

Magnesite

(Base prices per net ton, fob works, Chewelah, Wash.)

Domestic dead-burned, ¾" grains: Bulk, $31; single paper bags, $35.50.

Dolomite

(Base prices per net ton)

Domestic, dead-burned, bulk: Billmeyer, Blue Bell, Williams, Plymouth Meeting, Pa., Millville, W. Va., Nario, Millersville, Martin, Gibonsburg, Woodville, O., $11.85; Thornton, McCook, Ill., $11.95; Dolly Siding, Bonne Terre, Mo., $12.05.

Ores

Lake Superior Iron Ore

Gross ton, 51½% (natural) Lower Lake Ports

(Any increase or decrease in R. R. freight rates, dock handling charges and taxes thereon effective after Apr. 1, 1948, are for buyer's account.)

Old range bessemer	$6.60
Old range nonbessemer	6.45
Mesabi bessemer	6.35
Mesabi nonbessemer	6.20
High phosphorus	6.20

Eastern Local Ore

Cents, units, del. E. Pa.

Foundry and basic contract	56.62% 15.25

Foreign Ore

Cents per unit, cif Atlantic ports

Swedish basic, 60 to 68%	14.50
Brazil iron ore, 68-69% fob Rio de Janeiro, nom.	5.50-6.50

Tungsten Ore

Wolframite and scheelite per short ton unit, duty paid	$26-$28

Manganese Ore

48-50%, duty paid, fob cars, New York, Philadelphia, Baltimore, Norfolk, Va., Mobile, Ala., New Orleans, 67.60c-72.60c.

Chrome Ore

Gross ton fob cars, New York, Philadelphia, Baltimore, Charleston, S.C., plus ocean freight differential for delivery to Portland, Oreg., and/or Tacoma, Wash. (S S paying for discharge; dry basis, subject to penalties if guarantees are not met.)

Indian and African	
48% 2.8:1	$37.50
48% 3:1	39.00
48% no ratio	31.00
South African (Transvaal)	
44% no ratio	$25.50-$26.00
45% no ratio	26.50
48% no ratio	29.00-30.00
50% no ratio	29.50-30.50
Brazilian—nominal	
44% to 2.5:1 lump	$33.65
Rhodesian	
45% no ratio	$27-$27.50
48% no ratio	30.00
48% 3:1 lump	39.00
Domestic (seller's nearest rail)	
48% 3:1	$39.00

Molybdenum

Sulphide conc., lb., Mo., cont., Mines	$0.75

Fluorspar

Metallurgical grade, fob shipping point, in Ill., Ky., net tons, carloads, effective CaF_2 content, 70% or more, $35; less than 60% $32.

HIGH STRENGTH—LOW-ALLOY STEELS

Prices in dollars per 100 pounds

	Pittsburgh	Chicago	Gary	Youngstown	Sparrows Point	Buffalo	Cleveland	Bethlehem	Canton Massillon
Sheet, Hot-Rolled	4.20	4.20-4.30	4.20-4.30	4.20-4.30	4.30	4.30	4.20	...	...
Cold-Rolled	5.20	5.20-5.30	5.20-5.30	5.20-5.30	...	5.30	5.20	...	...
Galvanized	5.90	.....	.....	.....	...	6.00	...	...	...
Strip, Hot-Rolled	4.20	4.30	4.20-4.30	4.20-4.30	...	...	4.20	...	...
Cold-Rolled	5.20	5.30†	5.30†	5.30	...	...	5.20	...	...
Shapes, Structural	4.20	4.20-4.30	4.20	4.30	...	...	...	4.30	...
Plates	4.45	4.45-4.55	4.45-4.55	.....	4.55	...	...	...	...
Bars, Small Shapes	4.35	4.35-4.45	4.35-4.45	4.35-4.45	...	4.45	...	...	4.45

† Nax High Tensile, produced by Great Lakes Steel Corp., quoted 10 cents higher.

WAREHOUSE STEEL PRICES

Prices, cents per pound, for delivery within switching limits, subject to extras.

	SHEETS			STRIP		BARS				PLATES	
	H-R 10 Ga.	C-R 17 Ga.	Gal. *10 Ga.	†H-R	†C-R	H-R Rds. ⅝" to 3"	C-F Rds. ½" & up	H-R Alloy **4140	Structural Shapes§§	Carbon ⅝"-¾"	Floor ⅝" & Thicker
Boston (city) ..	5.08	5.84[4]	6.28[4]	5.64	6.90	5.09	5.96	7.70	4.94	5.23	6.89
Boston (c'try)..	4.98	5.64[4]	6.08[4]	5.44	...	4.89	...	...	4.74	5.03	6.69
New York (city)	4.94	5.80	6.13	5.58	...	5.05	5.78	7.23	4.77	5.09	6.58
New York (c'try)	4.79	5.65	5.98	5.43	...	4.90	...	...	4.62	4.94	6.43
Phila. (city)....	4.87	5.81	5.92	5.36*†	...	4.91	5.73	7.30	4.59	4.87	6.36
Phila. (c'try.)..	4.72	5.66	5.77	5.21*†	...	4.76	...	...	4.44	4.72	6.21
Wash. (city) ..	4.81	...	...	5.08	...	5.14	5.79	...	4.98	5.03	6.68
Wash. (c'try.) .	4.71	...	...	4.98	...	5.04	...	...	4.88	4.93	6.58
Balt. (city) ...	4.27†	5.59	5.62	4.79	...	4.84	5.66	...	4.69	4.72	6.09
Balt. (c'try.) .	4.12†	5.44	5.40	4.64	...	4.69	...	...	4.54	4.57	5.94
Norfolk, Va. ..	4.90	...	...	...	...	5.20	6.00	...	5.15	5.15	6.90
Memphis (city)	4.91[20]‖	5.98[3]†	...	5.11[39]	...	5.01[39]	5.88	...	5.01[39]	5.21[39]	6.83[39]
Memphis (c'try)	4.81[20]‖	5.88[3]†	...	5.01[39]	...	4.91[39]	5.78	...	4.91[39]	5.11[39]	6.73[39]
Buffalo (city) .	4.25	5.20[3]	6.05	5.25	5.97	4.40	5.10	6.85	4.40	5.00	6.25
Buffalo (c'try.)	4.10	5.05[3]	5.50	4.70	5.82	4.25	4.95	6.85	4.25	4.45	5.75
Pitts. (city) ..	4.20-4.25‖	5.05-5.10[3]†	5.60-5.65	4.30-4.35	5.35	4.35-4.40	5.05-5.10	6.70	4.35-4.40	4.55	5.90
Pitts. (c'try) ..	4.05-4.10‖	4.85-4.95[3]†	5.40-5.50	4.15-4.20	5.20	4.20-4.25	4.85-4.95	6.70	4.20-4.25	4.40	5.75
Cleve. (city) ..	4.45	5.10[3]	5.84	4.52	5.25	4.40	5.00-5.10	7.14	4.67	4.60	5.90
Cleve. (c'try.) .	4.30-4.90	4.95-5.75[3]	...	...	5.10	4.25	4.85-4.95	...	...	4.45	5.75
Detroit	4.66	5.31	6.10	4.75	5.97	4.61	5.49	7.47	4.80	4.95	6.25
Cincinnati	4.51-4.66	5.22	5.77	4.80	6.00	4.76	5.59	...	4.80	4.98	6.31
Indianapolis ...	4.52	5.01[3]	5.96	4.62	5.87	4.67	5.52	8.85	4.67	4.87	6.17
Chicago (city) .	4.40	5.10[3]	5.55-5.65	4.30	5.35	4.35	5.00	6.70[9]	4.35	4.55	5.80
Chicago (c'try.)	4.25	4.95[3]	5.40-5.50	4.15	5.20	4.20	4.85	6.70[9]	4.20	4.40	5.65
Milwaukee	4.62	5.32[3]	5.77-5.87	4.52-5.02	5.57	4.57	5.334	7.184[9]	4.57	4.77	6.02
St. Paul, Minn..	4.66[6]	5.56[3]†	6.01[3]	4.76	6.29[12]	4.81[6]	5.94[11]	7.84[11]	4.81[6]	5.01[6]	6.26[6]
St. Louis	4.79	5.49[3]	6.27	5.24	5.97	4.74	5.62[13]	8.97	4.74	4.94	6.19
Birming. (city).	4.45[20]‖	...	5.65	4.45[39]	...	4.40[39]	6.09[23]	...	4.40	4.65	6.99
Birming. (c'try.)	4.30[20]‖	...	5.50	4.30[39]	...	4.25[39]	...	...	4.25	4.50	...
Houston, Tex. .	5.75	...	7.36	6.00	...	5.70	7.00	9.25[9]	5.70	5.90	7.20
Omaha, Nebr...	5.31	...	6.76	5.41	...	5.46	6.96	...	5.41	5.66	6.65
Los Angeles ...	5.70‖	7.25[3]	7.30	6.00	8.60	5.45	7.25[1]	9.40[32]‡‡	5.15-5.30	5.35	7.40
Seattle-Tacoma.	5.45[17]‖	7.25[3]‡	7.10	6.15[17]	...	5.65[17]	7.35[1]	8.70[12]	5.30[17]	5.60[17]	7.65[17]

Base Quantities: 400 to 1999 lb except as noted: Cold-rolled strip, 2000 lb and over; cold finished bars, 1000 lb and over; galvanized sheets, 450 to 1499 lb; [1]—1500 lb and over; [3]—1000 to 4999 lb; [5]—450 to 39,999 lb; [4]—three to 24 bundles; [6]—450 to 1499 lb; [8]—400 to 14,999 lb; [8]—400 to 1499 lb; [9]—1000 to 1999 lb; [11]—1000 to 39,999 lb; [12]—1000 lb and over; [16]—2000 lb and over; [17]—300 to 9999 lb; [18]—1500 to 1999 lb; [19]—1500 to 39,999 lb; [20]—400 to 3999 lb; [23]—400 lb and over; [32]—500 to 1499 lb.

* Includes gage and coating extra, except Birmingham (coating extra excluded); † does not include gage extras; ‡ 15 gage; ‖ 18 gage and heavier; ** as rolled; †† add 0.40 for sizes not rolled in Birmingham; ‡‡ annealed; §§ except wide flange beams, which are 0.05c lower; 12G. & heavier and includes machine straightening.

PRICES OF LEADING FERROALLOYS PRODUCTS

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si) Carlot per gross ton, $52, Palmerton, Pa., $51, Pittsburgh; (16% to 19% Mn.) $1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.). Carload, lump, bulk $145 per gross ton of alloy, carload packed $157, ton lot $172, less ton $189, fob New Orleans, Mobile, Philadelphia, Baltimore, New York. Carload, lump, bulk, $150 fob Rockwood, Tenn.; $150.50 fob Aetna, Pa., or $151.15 within Pittsburgh switching limits. Add or subtract $1.80 for each 1%, or fraction thereof, of contained manganese over 82% or under 78%. West Coast Prices: Carload (80,000 lb or more), lump, bulk, same price and basing points as above. All other prices for shipment from Pacific Coast warehouses, add $26.21 to above prices. Delivery is fob Portland, Los Angeles, South San Francisco, or Seattle warehouses, with railroad freight allowed on shipments of 25 gross tons or more.

Low-Carbon Ferromanganese, Regular Grade: (Mn 80-85%). Eastern Zone, carload, lump, bulk, max. 0.10% C, 22.5c per lb of contained Mn, carload packed 23.25c, ton lot 24.35c, less ton 25.55c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.7c for c.l. and 4.4c for l.c.l. Freight allowed. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max. 0.50% C, and 4.5c for max. 0.75% C—max. 7% Si. **Special Grade:** (Mn 90% approx., C 0.07% max., P 0.06% max.). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max., Si 1.5% max.). Eastern Zone, carload, lump, bulk 16.5c per lb of contained Mn, carload packed 17.25c, ton lot 18.35c, less ton 19.55c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.7c for c.l. and 4.4c for l.c.l. Freight allowed. Spot, add 0.25c.

Manganese Metal: (Mn 96% min., Fe 2% max., Si 1% max., C 0.20% max.). Eastern Zone, carload, 2" x D, bulk 32c per lb of metal, carload packed 32.5c, ton lot 34c, less ton 36c; Central, add 1c for c.l. and 1.45c for l.c.l.; Western, add 1.45c for c.l. and 2.4c for l.c.l. Freight allowed. Spot, add 2c.

Silicomanganese: (Mn 65-70%). Eastern Zone, contract, lump, bulk, 1.50% C grade, 17-20% Si, 7.8c per lb of alloy, carload packed, 8.55c, ton lot 9.45c, less ton 10.45; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.8c for c.l. and 2.5c for l.c.l. Freight allowed. For 2.0% C grade, Si 15-17%, deduct 0.2c from above prices. Spot, add 0.25c.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Eastern Zone, contract, c.l., lump, bulk 18.6c per lb of contained Cr, c.l., packed 19.5c, ton lot 20.65c, less ton 22.05c; Central, add 0.4c for c.l. and 1.3c for l.c.l.; Western, add 0.55c for c.l. and 2.1c for l.c.l. Freight allowed. Spot, add 0.25c.

"SM" High-Carbon Ferrochrome: (Cr 60-65%, Si 4-6%, Mn 4-6%, C 4-6%). Add 1.1c to high-carbon ferrochrome prices.

Foundry Ferrochrome: (Cr 62-66%, C 5-7%). Eastern Zone, contract, c.l., 8MxD, bulk 20.1c per lb of cotnained Cr, c.l., packed 21.0c, ton lot 22.35c, less ton 24.1c; Central, add 0.4c for c.l. and 1.3c for l.c.l.; Western, add 0.55c for c.l. and 2.1c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Carbon Ferrochrome: (Cr 67-72%). Eastern Zone, contract, carload, lump, bulk, max. 0.03% C 28.5c per lb of contained Cr, 0.04% C 27.5c, 0.05% C 27.0c, 0.06% C 26.5c, 0.10% C 26.0c, 0.15% C 25.5c, 0.20% C 25.25c, 0.50% C 25.0c, 1% C 24.5c, 2% C 24.25c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c; Central, add 0.4c for c.l. and 0.65c for l.c.l.; Western, add 0.5c for c.l. and 1.85c for l.c.l. Freight allowed, Spot, add 0.25c.

"SM" Low-Carbon Ferrochrome: (Cr 62-66%, Si 4-6%, Mn 4-6%, add C 1.25% max.). Eastern Zone, contract, carload, lump, bulk 25c per lb of contained chromium, carload, packed 26.1c, ton lot 27.3c, less ton 29.1c; Central, add 0.4c for c.l. and 0.65c for l.c.l.; Western, add 0.5c for c.l. and 1.85c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Carbon Ferrochrome, Nitrogen Bearing: Add 2c to 0.10% C low-carbon ferrochrome prices for approx. 0.75% N. Add 2c for each 0.25% of N above 0.75%.

Chromium Metal: (Mn. 97% Cr and 1% Fe). Eastern Zone, contract, carload, 1" x D; packed, max. 0.50% C grade, 93c per lb of contained chromium, ton lot 94.5c, less ton 97c; Central, add 1.5c for c.l. and 2.5c for l.c.l.; Western, add 2.75c for c.l. and 4.5c for l.c.l. Freight allowed. Spot, add 5c.

SILICON ALLOYS

20-30% Ferrosilicon: Contract, carload, lump, bulk, 16.50c per lb. of contained Si, fob Niagara Falls, N. Y.

50% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk 9.3c per lb of contained Si, carload packed 10.9c, ton lot 12.35c, less ton 14.0c; Central, add 0.5c for c.l. and 1.25c for l.c.l.; Western, add 0.7c for c.l. and 1.8c for l.c.l. Freight allowed. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (All 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk 11.8c per lb of contained Si carload packed 13.1c, ton lot 14.25c, less ton 15.5c; Central, add 0.3c for c.l. add 0.75c for l.c.l.; Western, add 1.05c for c.l. and 5c for l.c.l. Freight allowed. Spot, add 0.3c.

85% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk 13.3c per lb of contained Si, carload packed 14.55c, ton lot 15.55c, less ton 16.7c; Central, add 0.3c for c.l. and 0.7c for l.c.l.; Western, add 1.05c for c.l. and 4.4c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Aluminum 85% Ferrosilicon: (Al 0.50% max.). Add 0.7c to 85% ferrosilicon prices.

90% Ferrosilicon: Eastern Zone, contract, carload, lump, bulk, 15c per lb of contained Si carload packed 16.2c, ton lot 17.15c, less ton 18.2c; Central, add 0.3c for c.l. and 0.65c for l.c.l.; Western, add 1c for c.l. and 4c for l.c.l. Freight allowed. Spot, add 0.25c.

Low-Aluminum 90-95% Ferrosilicon: (Al 0.50% max.). Add 0.7c to above 90-95% ferrosilicon prices.

Silicon Metal: (Over 97% Si and 1% max. Fe.) Eastern Zone, c.l., lump, bulk, regular 17.3c per lb of Si, c.l. packed 18.5c, ton lot 19.4c, less ton 20.4c; Central, add 0.6c for c.l. and 2.25c for l.c.l.; Western, add 1.2c for c.l. and 4c for l.c.l. Add 1c for max. 0.20% calcium grade. Add 1.5c for max. 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing over 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe) Contract basis fob Niagara Falls, N. Y., lump per lb cl 6.90c; ton lots packed, 7.40c; 200 to 1999 lb, 8.15c; smaller lots 8.65c. Spot up 0.5c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Eastern Zone, contract, carload, bulk, 12.5c per lb or briquet, carload packed 13.2c, ton lot 14.0c, less ton 14.9c; Central, add 0.25c for

(Please turn to Page 170)

Metal Pricing Policies Under Review

Producers studying legal aspects of present system following decisions outlawing multiple basing points

New York—What impact the Cement Case ruling will have on distribution of nonferrous metals, primary and fabricated products, is subject to wide differences of opinion. The industry is studying the legal aspects of the matter with indications no hasty action generally will be taken.

One school of thought holds that in the selling of copper and zinc, some revisions will be forthcoming, but others think distribution practice of the nonferrous industry does not parallel those of the cement and steel industries. Thus far, experts studying the matter have failed to come up with a uniform opinion.

The upward price spiral evident in many lines of the nation's economy has been reflected in nonferrous metal markets chiefly in remelt aluminum, which advanced 1 to 1½ cents a pound further last week. At least two producers of copper wire advanced prices 5 to 13 per cent. Major metal prices held unchanged.

Copper—Seasonal quietness has settled over the primary copper market and consumers show little interest in covering August needs. Prices remained unchanged last week on the basis of 21.50c, Connecticut, for electrolytic.

Lead—Settlement of the contract controversy at American Smelting & Refining Co.'s Perth Amboy, N. J., plant may set the pattern for similar agreements with the union at other mills and mines. Unless the widespread labor trouble in the western mining fields are ended soon, present shortages may enter the critical stage by late summer.

Zinc—Matthiessen & Hegeler Zinc Co. reached a new wage agreement affecting all of the company's rolling mill and smelter employees affiliated with the CIO shipbuilders' union. The workers were granted an across-the-board wage increase of 10 cents an hour.

Stocks of slab zinc declined slightly in June to 43,280 tons from 44,253 tons at the end of May. Stock figures have been revised to include all secondary smelter operations not previously reported to the American Zinc Institute. All regularly operating plants are now covered by this report.

Shipments eased to 69,345 tons in June from 72,848 tons in May and compared with 63,527 tons in the like 1947 month. June shipments included 184 tons for government account and 8023 tons for export and drawback. Production was slightly lower at 61,138 tons in June compared with 67,291 tons in May.

Unfilled orders for slab zinc at the end of June totaled 69,345 tons compared with 71,018 tons at the end of May, 67,562 tons at the end of January and 46,029 tons at the end of June of last year.

The daily average rate of production held fairly steady during the first six months of the year, ranging from a low of 2279 tons in June to a high of 2397 tons in March.

Tin—Stocks of pig tin held by the Office of Metals Reserve which were available for sale on June 30 totaled 35,701 tons, or an increase of 3264 tons during the month, 11,146 tons since Jan. 1, and 19,345 tons since Sept. 30, 1947. Allocations during June of 4994 tons were the smallest for any month since last October.

According to reports circulating in the trade here, the Bolivian delegate at the recent meeting at The Hague requested that the price of tin be raised to £600, equivalent to about $1.09 a pound, New York. However, it is expected that the price will remain unchanged at present levels, barring some unforeseen development.

Production of Longhorn tin at the Texas City, Tex., smelter increased about 25 tons above the preliminary estimate for June to a total of 3650 tons.

Secondary Aluminum—Smelters of remelt aluminum ingots advanced prices 1 to 1½ cents a pound on all grades, effective as of July 13. The advance was attributed to "fantastic" prices which they are paying for scrap to cover needs. No. 2 grade of No. 12 aluminum ingot is now quoted 23.50c to 24.00c while No. 122 type of piston alloy is quoted 24.00c to 24.75c. Some smelters are accepting orders for ingots on the basis of ability to purchase the necessary scrap, while a few others are booking orders only after previously purchased scrap has actually arrived at their plant. Production is being allocated on a voluntary basis, chiefly to long-established customers.

Perth Amboy Wage Pact

Perth Amboy, N.J.—American Smelting & Refining Co.'s large copper-lead refinery here has signed a wage agreement with the local union of the International Union of Mine, Mill and Smelter Workers (CIO). The agreement, effective July 1, calls for an increase of 12 cents an hour in wages and will run for one year.

There were no "fringe" provisions in the new contract.

Bridgeport Brass Gets WAA Plant

Bridgeport, Conn. — Bridgeport Brass Co. formally acquired title July 1 to the $17 million brass plant at Indianapolis from the War Assets Administration. The plant was built during the war and was planned in 1940 when studies of the nation's brass facilities made by Herman W. Steinkrauss, chairman of the Bridgeport Brass board, showed that the industry's capacity was only about 65 per cent, based upon minimum requirements of the 2 million-man army.

The first brass bar was poured and the casting shop became an operating department on Mar. 20, 1942. During the initial month of operations, 5 million pounds of brass were produced. By July, 1942, the casting shop had reached a monthly production of 12 million pounds. The plant, originally designed to make cartridge cases, has been retooled so that it has become the western outlet for a complete line of mill products, "sheet, rod, tube, and other brass items" for the company.

U.S. Rubber Raises Wire Prices

New York — U. S. Rubber Co. has advanced electrical wire and cable prices 6 to 13 per cent. Copper building wire was increased 13 per cent; aluminum building wire with braided cover, 7 per cent; aluminum building wire with neoprene cover, 13 per cent; and portable cords, 6 per cent.

Phelps Dodge Raises Wire Prices

New York — Phelps Dodge Copper Products Corp. advanced its prices of copper wire and cable products 5 to 13 per cent, effective as of July 15.

The corporation's prices for bare, weatherproof and Habirlene wires and cables were advanced about 7.5 per cent; magnet wire, 8 per cent; varnished cambric cable, 5 per cent; Habirshaw mold cured cords and cables, 6 per cent; and other cords about 6 per cent.

It was also announced that the company on July 1 advanced its prices for building wire and cables, nonmetallic sheathed cables and service entrance cables by about 13 per cent.

Aluminum Industry Increases

Washington — Output of primary aluminum in April totaled 53,277 short tons, an increase of 3 per cent over the 51,874 tons produced in March, and the highest monthly production since August, 1944, according to the Bureau of Mines. For the first time since the spring of 1947, sufficient power was available to operate all currently operable reduction facilities, with the exception of the idle half of Reynolds' Jones Mills plant, as full water flow at generating facilities permitted greater power production. After a steady decline of eight months' duration, stocks of pig aluminum at reduction plants increased slightly in April, as shipments and use of pig were lower than output. The continued strong demand for aluminum was quite evident in the scrap market, with prices of most scrap items advancing from one-half cent to one cent a pound, and the prices of some grades of secondary aluminum ingot jumping as much as 3 cents a pound. At the end of the month, prices of most secondary alloys were considerably greater than those for the corresponding types of primary ingot.

NONFERROUS METAL PRICES

(Cents per pound, carlots, except as otherwise noted)

Copper: Electrolytic, 21.50c, Conn. Valley; Lake, 21.62½c Conn. Valley.

Brass Ingot: 85-5-5-5 (No. 115) 19.50-20.00c; 88-10-2 (No. 215) 29.00c; 80-10-10 (No. 305) 25.25c; No. 1 yellow (No. 405) 15.25-16.00c.

Zinc: Prime western 12.00c, brass special 12.25c, intermediate 12.50c, East St. Louis; high grade 13.00c, delivered.

Lead: Common 17.30-17.35c; chemical and corroding 17.40c, St. Louis.

Primary Aluminum: 99% plus, ingots 15.00-16.00c, pigs 13.50-15.00c; metallurgical 94% min. nom. 14.50c. Base prices for 10,000 lb and over, fob shipping point, freight allowed.

Secondary Aluminum: Piston alloy (No. 122 type) 24.00-24.75c; No. 12 foundry alloy (No. 2 grade) 23.50-24.00c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 25.25-25.75c; grade 2, 24.50-25.00c; grade 3, 24.00-24.75c; grade 4, 23.50-24.25c. Prices include freight at carload rate up to 75 cents per 100 lb.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over, 20.50c, fob Freeport, Tex.

Tin: Grade A, 99.8% or higher (including Straits) $1.03; grade B, 99.8% or higher, not meeting specifications for grade A, with 0.05% max. arsenic, $1.028; grade C, 99.65-99.79%, incl., $1.024; 99.5-99.649% $1.024, grade F, 98-98.999% $1.015 for tin content. Prices are ex-dock, New York, in 5-ton lots.

Antimony: American 99-99.8% and over but not meeting specifications below, 35.00; 99.8% and over (arsenic 0.05% max.; other impurities, 0.1% max.) 35.50c, fob Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 33.75c; 25-lb pigs, 35.25c; shot, 36.25c; "F" nickel shot or ingots, for addition to cast iron, 34.25c. Prices include import duty.

Mercury: Open market, spot, New York $76-$78 per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, $20.50 per lb contained Be.

Cadmium: "Regular" straight or flat forms, $1.75, del.; special or patented shapes, $1.80.

Cobalt: 97-98%, $1.65 per lb for 550 lb (keg); $1.67 per lb for 100 lb (case); $1.72 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York, 74.62½c per ounce.

Platinum: $88-$91 per ounce.

Palladium: $24 per troy ounce.

Iridium: $100-$110 per troy ounce.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Base prices, fob mill.)

Sheet: Copper 35.18c; yellow brass 31.41c; commercial bronze, 95%, 35.05c; 90% 34.52c; red brass, 85% 33.48c; 80% 32.95c; best quality 32.34c; nickel silver, 18%, 43.42c; phosphotbronze, grade A, 5%, 54.15c.

Rods: Copper, hot rolled 31.28c; cold drawn 32.28c; yellow brass, free cutting, 25.94c; commercial bronze, 95% 34.74c, 90% 34.21c; red brass, 85% 33.17c, 80% 32.64c.

Seamless Tubing: Copper 35.22c; yellow brass 34.42c; commercial bronze 90% 37.18c; red brass 85% 36.39c, 80% 35.86c.

Wire: Yellow brass 31.70c; commercial bronze, 95% 35.34c; 90% 34.81c; red brass, 85% 33.77c, 80% 33.24c; best quality brass 32.63c.

Copper Wire: Bare, soft, fob eastern mills, c.l. 26.80c, l.c.l. 27.30c; weatherproof, fob eastern mills, c.l. 27.35c, l.c.l. 27.85c; magnet, delivered, c.l. 29.75-31.13c, 15,000 lb or more 30.00-31.38c, l.c.l. 30.50-31.88c.

ALUMINUM

(Revised price schedule pending; effective June 28)

Sheets and Circles: 2s and 3s mill finish c.l.

Thickness Range, Inches	Widths or Diameters, In., Incl.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	24.0	...	...
0.135-0.126	12-48	24.5	...	...
0.125-0.096	12-48	24.5	23.1	26.3
0.095-0.077	12-48	25.0	23.2	26.5
0.076-0.061	12-48	25.5	23.4	26.7
0.060-0.048	12-48	25.7	23.6	27.0
0.047-0.038	12-48	26.1	23.8	27.3
0.037-0.030	12-48	26.4	24.1	27.7
0.029-0.024	12-48	26.8	24.4	28.1
0.023-0.019	12-36	27.4	24.8	28.6
0.018-0.017	12-36	27.9	25.3	29.3
0.016-0.015	12-36	28.6	25.9	30.1
0.014	12-24	29.4	26.6	31.1
0.013-0.012	12.24	30.2	27.3	32.0
0.011	12-24	31.1	28.1	33.1
0.010-0.0095	12-24	32.1	29.0	34.3
0.009-0.0085	12-20	33.2	30.0	35.7
0.008-0.0075	12-20	34.4	31.1	37.1
0.007	12-18	35.7	32.3	38.8
0.006	12-18	37.0	33.5	42.6

* Minimum length, 60 inches. † Maximum diameter, 24 inches.

Screw Machine Stock: 5000 lb and over.

Diam. (in.) or distance across flats	—Round— R317-T	—Round— 17S-T	—Hexagonal— R317-T	—Hexagonal— 17S-T
0.125	45.0	44.0	...	...
0.156-0.203	38.5	37.5	...	...
0.219-0.313	35.5	34.5	...	...
0.344	34.0	33.0	...	...
0.375	33.0	32.0	42.5	40.0
0.406	33.0	32.0	...	...
0.438	33.0	32.0	42.5	40.0
0.469	33.0	32.0	...	...
0.500	33.0	32.0	42.5	40.0
0.531	33.0	32.0	...	...
0.563	33.0	32.0	40.5	38.0
0.594	33.0	32.0	...	...
0.625	33.0	32.0	40.5	38.0
0.656	33.0	32.0	...	...
0.688	33.0	32.0	40.5	38.0
0.750-1.000	32.0	31.0	37.0	35.5
1.063	32.0	31.0	35.5	34.0
1.125-1.500	31.0	30.0	35.5	34.0
1.563	31.0	30.0	...	...
1.625	30.0	29.0	34.5	33.0
1.688-2.000	30.0	29.0	...	...
2.125-2.500	29.5	28.5	...	...
2.625-3.375	28.5	27.5	...	...

LEAD

(Prices to jobbers, fob Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more, $20.85 per cwt.; add 50c per cwt., 10 sq ft to 140 sq ft; $1.25, less than 10 sq ft; $1, circles and segments. Pipe: Full coils, $20.10 per cwt; cut coils, $20.35. Traps and Bends: List price plus 52%.

ZINC

Sheets, 16.50c-17.00c, fob mill, 36,000 lb and over. Ribbon zinc in coils, 15.25c-16.00c, fob mill, 36,000 lb and over. Plates, not over 12-in., 14.25c; over 12-in., 15.25c.

NICKEL

(Base prices, fob mill.)

Sheets, cold-rolled, 54.00c. Strip, cold-rolled 60.00c. Rods, hot-rolled 50.00c, cold-finished 55.00c. Angles, hot-rolled, 50.00c. Plates, 52.00c. Seamless tubes, 83.00c.

MONEL

(Base prices, fob mill.)

Sheets, cold-rolled 43.00c; No. 35, 41.00c. Strip, cold-rolled, 44.00c. Rods, hot-rolled 39.00c; cold-finished 44.00c. Angles, hot-rolled, 39.00c. Plates, 41.00c. Seamless tubes, 71.00c. Shot and blocks, 31.00c.

MAGNESIUM

Extruded Rounds, 12 in. long, 1.312 in. in diameter, less than 25 lb, 52.00-56.00c; 25 to 99 lb, 42.00-46.00c; 100 lb to 4000 lb, 35.00-36.00c.

Plating Materials

Chromic Acid: 99.9%, flake, fob Philadelphia, carloads, 26.00c; 5 tons and over 26.50c; 1 to 5 tons, 27.00c; less than 1 ton, 27.50c.

Copper Anodes: Base, 2000 to 5000 lb; fob shipping point, freight allowed: Flat untrimmed, 31.84c; oval, 31.34c; electrodeposited, 31.09c; cast, 30.12c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 44.00c, fob Niagara Falls, N. Y.

Sodium Cyanide: 96-98%, ½-oz ball, in 200 lb drums, 1 to 900 lb, 16.00c; 1000 to 19,900 lb, 15.00c, fob Niagara Falls, N. Y.

Copper Carbonate: 54-56% metallic Cu; 50 lb bags, up to 250 lb, 25.00c; over 250 lb, 24.00c, fob Cleveland.

Nickel Anodes: Rolled oval, carbonized, carloads, 48.00c; 10,000 to 30,000 lb, 49.00c; 3000 to 10,000 lb, 50.00c; 500 to 3000 lb, 51.00c; 100 to 500 lb, 53.00c; under 100 lb, 56.00c; fob Cleveland. Add 1 cent for rolled depolarized.

Nickel Chloride: 100-lb kegs, 25.00c; 275-lb, or 500-lb bbls. 23.00c, fob Cleveland.

Tin Anodes: Bar, 1000 lb and over 119.00c; 500 to 999 lb, 119.50c; 200 to 499 lb, 120.00c; less than 200 lb, 121.50c; ball, 1000 lb and over, 121.25c; 500 to 999 lb 121.75c; 200 to 499 lb, 122.25c; less than 200 lb, 123.75c, fob Sewaren, N. J.

Sodium Stannate: 25 lb cans only, less than 100 lb, to consumers 71.8c; 100 or 300 lb drums only, 100 to 500 lb, 63.6c; 600 to 1900 lb, 61.2c; 2000 to 9900 lb, 59.4c. Prices fob Sewaren, N. J.

Zinc Cyanide: 100-lb drums 37.25c, fob Cleveland; 37.00c, Detroit; 36.00c, fob Philadelphia.

Stannous Sulphate: Less than 2000 lb, in 100 lb kegs, 100.00c, in 400 lb bbl. 99.00c; more than 2000 lb, in 100 lb kegs, 99.00c, in 400 lb bbl, 98.00c.

Scrap Metals

BRASS MILL ALLOWANCES

(Based on 21.50c, Conn., for copper)

Prices in cents per pound for less than 15,000 lb fob shipping point.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	19.125	19.125	18.375
Yellow brass	15.625	15.375	14.750
Commercial Bronze			
95%	18.125	17.875	17.375
90%	17.625	17.375	16.875
Red brass			
85%	17.500	17.250	16.750
80%	17.250	17.000	16.500
Best Quality (71-79%)	16.625	16.375	15.875
Muntz Metal	14.750	14.500	14.000
Nickel silver, 10%	17.000	16.750	8.500
Phos. bronze, A	20.750	20.500	19.500
Naval brass	15.250	15.000	14.500
Manganese bronze	15.250	15.000	14.375

BRASS INGOT MAKERS BUYING PRICES

(Cents per pound, fob shipping point, carload lots)

No. 1 copper 18.50, No. 2 copper 17.50, light copper 16.50, composition red brass 15.00-15.25, auto radiators 12.50-12.75, heavy yellow brass 10.75-11.00, brass pipe, 11.75-12.00.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 18.50-18.75, No. 2 copper 17.50-17.75, light copper, 16.50-16.75, refinery brass (60% copper), per dry copper content 16.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots or more)

Copper and Brass: Heavy copper and wire No. 1 17.00-17.25, No. 2 16.00-16.25, light copper 15.00-15.25, No. 1 composition red brass 13.25-13.50, No. 1 composition turnings 12.75-13.00, mixed brass turnings 7.50-7.75, new brass clippings 13.00-13.50, No. 1 brass rod turnings 10.00-10.50, light brass 6.75-7.25, heavy yellow brass 9.25-9.50, new brass rod ends 10.50-11.00, auto radiators, unsweated 10.25-10.50, cocks and faucets 10.25-10.50, brass pipe 10.25-10.50.

Lead: Heavy 15.50-16.00, battery plates 9.75-10.25, linotype and stereotype 17.00-17.50, electrotype 15.00-15.50, mixed babbitt 14.25-14.75, solder joints, 18.75-19.25.

Zinc: Old zinc 5.75-6.00, new die cast scrap 4.75-5.25, old die cast scrap 2.75-3.25.

Tin: No. 1 pewter 65.00-67.00, block tin pipe 83.00-84.00, No. 1 babbitt 51.00-54.00, siphon tops 50.00-52.00.

Aluminum: Clippings 2S 11.50-12.00, old sheets 10.00-10.50, crankcases 10.00-10.50, borings and turnings 4.50-5.00, pistons, free of struts, 10.00-10.50.

DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
June Avg.	21.500	17.325	12.000	103.00	15.058	35.000	33.750	74.625
July 1-15	21.500	17.30-17.35	12.000	103.00	15.00-16.00	35.00	33.750	74.625

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. E. St. Louis; Zinc, prime western, del. St. Louis; Tin, Straits, del. New York; Aluminum, primary ingots, 99%, del.; Antimony, bulk, fob Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery, unpacked; Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

OPEN MARKET PRICES, IRON AND STEEL SCRAP

Prices are dollars per gross ton, including broker's commission, delivered at consumer's plant except where noted.

PITTSBURGH

No. 1 Heavy Melt. Steel	$40.00-40.50*
No. 2 Heavy Melt. Steel	40.00-40.50*
No. 1 Busheling	40.00-40.50*
Nos. 1, 2 & 3 Bundles	40.00-40.50*
Machine Shop Turnings	36.50-37.00
Mixed Borings, Turnings	36.50-37.00
Short Shovel Turnings	37.00-37.50
Cast Iron Borings	37.00-37.50
Bar Crops and Plate	48.00-48.50
Low Phos. Steel	47.50-48.50
Heavy Turnings	39.50-40.00

Cast Iron Grades

No. 1 Cupola	63.00-64.00
Charging Box Cast	53.00-54.00
Heavy Breakable Cast	56.00-58.00
Unstripped Motor Blocks	52.00-53.00
Malleable	69.00-70.00
Brake Shoe	55.50-56.00
Clean Auto Cast	58.00-59.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	41.00-41.50
R.R. Malleable	75.00-80.00
Axles	51.50-52.00
Rails, Rerolling	56.00-58.00
Rails, Random Lengths	54.00-56.00
Rails, 3 ft and under	60.00-60.50
Rails, 18 in. and under	62.50-63.50
Railroad Specialties	55.50-56.50
Uncut Tires	52.00-52.50
Angles, Splice Bars	53.00-54.00

* Plus applicable freight springboard.

CLEVELAND

No. 1 Heavy Melt. Steel	$39.50-40.00*
No. 2 Heavy Melt. Steel	39.50-40.00*
No. 1 Busheling	39.50-40.00*
Nos. 1 & 2 Bundles	39.50-40.00*
Machine Shop Turnings	34.50-35.00
Mixed Borings, Turnings	34.00-36.00
Short Shovel Turnings	35.50-36.00
Cast Iron Borings	35.50-36.00
Bar Crops and Plate	44.50-45.00
Punchings & Plate Scrap	44.50-45.00
Heavy Turnings	39.50-40.50
Alloy Free Turnings	37.50-38.50
Cut Structurals	46.00-49.00

Cast Iron Grades

No. 1 Cupola	67.00-69.00
Charging Box Cast	58.00-60.00
Stove Plate	58.00-60.00
Heavy Breakable Cast	54.00-56.00
Unstripped Motor Blocks	58.00-60.00
Malleable	73.00-75.00
Brake Shoes	52.00-53.00
Clean Auto Cast	68.00-70.00
No. 1 Wheels	58.00-60.00
Burnt Cast	56.00-57.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.50-41.50*
R.R. Malleable	73.00-75.00
Rails, Rerolling	57.00-58.00
Rails, Random Lengths	56.00-57.00
Rails, 3 ft and under	60.00-61.00
Cast Steel	56.00-58.00
Railroad Specialties	53.00-55.00
Uncut Tires	51.00-53.00
Angles, Splice Bars	57.00-58.00

* Plus applicable freight springboard.

VALLEY

No. 1 Heavy Melt. Steel	$40.00-40.50*
No. 2 Heavy Melt. Steel	40.00-40.50*
No. 1 Bundles	40.00-40.50*
Machine Shop Turnings	34.50-35.50
Short Shovel Turnings	36.50-37.00
Cast Iron Borings	36.00-36.50
Low Phos.	46.00-47.50*

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.50-41.50*

* Plus applicable freight springboard.

MANSFIELD

Machine Shop Turnings	$35.00-35.50
Short Shovel Turnings	37.00-37.50

CINCINNATI

No. 1 Heavy Melt. Steel	$39.50
No. 2 Heavy Melt. Steel	39.50
No. 1 Busheling	39.50
Nos. 1 & 2 Bundles	39.50
Machine Shop Turnings	33.50
Mixed Borings, Turnings	32.50
Short Shovel Turnings	35.50
Cast Iron Borings	34.50

Cast Iron Grades

No. 1 Cupola Cast	55.00
Charging Box Cast	43.00
Heavy Breakable Cast	50.00
Stove Plate	47.00
Unstripped Motor Blocks	45.00
Brake Shoes	45.00
Clean Auto Cast	55.00
Drop Broken Cast	60.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.50
R.R. Malleable	68.00
Rails, Rerolling	53.00
Rails, Random Lengths	50.00
Rails, 18 in. and under	60.00

DETROIT

(Brokers' buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$35.00-35.50
No. 1 Busheling	35.00-35.50
Nos. 1 & 2 Bundles	35.00-35.50
No. 3 Bundles	35.00-35.50
Machine Shop Turnings	29.00-29.50
Mixed Borings, Turnings	29.00-29.50
Short Shovel Turnings	30.00-30.50
Cast Iron Borings	30.00-30.50
Punchings & Plate Scrap	40.00-40.50

Cast Iron Grades

No. 1 Cupola Cast	53.00-58.00
Heavy Breakable Cast	47.00-52.00
Clean Auto Cast	53.00-58.00

BUFFALO

No. 1 Heavy Melt. Steel	$43.00-45.00
No. 2 Heavy Melt. Steel	39.75-40.25
No. 1 Busheling	39.75-40.25
No. 1 & 2 Bundles	39.75-40.25
Machine Shop Turnings	34.75-35.25
Mixed Borings, Turnings	34.75-35.25
Cast Iron Borings	35.50-36.00
Short Shovel Turnings	35.50-36.00
Low Phos.	44.75-45.25

Cast Iron Grades

No. 1 Cupola	60.00-62.00
Mixed Cupola	55.00-60.00
Heavy Breakable Cast	55.00-57.00
Malleable	70.00-75.00
Clean Auto Cast	62.00-64.00

Railroad Scrap

Rails, 3 ft. and under	60.00-61.00
Railroad Specialties	51.00-53.00

PHILADELPHIA

No. 1 Heavy Melt. Steel	$42.50-43.50
No. 2 Heavy Melt. Steel	39.00
No. 1 Busheling	39.00
Nos. 1 & 2 Bundles	39.00
No. 3 Bundles	37.00
Machine Shop Turnings	34.00-35.00
Mixed Borings, Turnings	34.00-35.00
Short Shovel Turnings	34.00-35.00
Bar Crop and Plate	48.00-49.00
Punchings & Plate Scrap	48.00-49.00
Cut Structurals	47.50-48.00
Elec. Furnace Bundles	44.00-44.50
Heavy Turnings	43.00-43.50
No. 1 Chemical Borings	42.00-43.00

Cast Iron Grades

No. 1 Cupola Cast	63.00-65.00
No. 1 Machinery Cast	67.00-68.00
Charging Box Cast	63.00-64.00
Heavy Breakable Cast	63.00-64.00
Unstripped Motor Blocks	59.50
Malleable	76.00-78.00
Clean Auto Cast	64.00-65.00
No. 1 Wheels	68.00-70.00

NEW YORK

(Brokers buying prices, fob shipping point)

No. 1 Heavy Melt. Steel	$36.50-37.00
No. 2 Heavy Melt. Steel	34.50
No. 1 Busheling	34.50
Nos. 1 & 2 Bundles	34.50
No. 3 Bundles	32.50
Machine Shop Turnings	28.50-29.00
Mixed Borings, Turnings	28.50-29.00
Short Shovel Turnings	30.50-31.00
Punchings & Plate Scrap	40.00-41.00
Cut Structurals	40.00-41.00
Elec. Furnace Bundles	40.00-41.00

Cast Iron Grades

No. 1 Cupola Cast	55.00-57.00
Charging Box Cast	56.00-58.00
Heavy Breakable	56.00-58.00
Unstripped Motor Blocks	52.50-53.50
Malleable	68.00-69.00

BOSTON

(Fob shipping point)

No. 1 Heavy Melt. Steel	$31.90
No. 2 Heavy Melt. Steel	31.90
No. 1 Bundles	31.90
No. 1 Busheling	31.90
Machine Shop Turnings	28.90-30.00
Mixed Borings, Turnings	28.90-30.00
Short Shovel Turnings	28.90
Bar Crops and Plate	35.00-37.00
Punchings & Plate Scrap	35.00-37.00
Chemical Borings	37.00-37.50

Cast Iron Grades

No. 1 Cupola Cast	50.00-52.00
Heavy Breakable Cast	53.00
Stove Plate	50.00
Unstripped Motor Blocks	48.00
Clean Auto Cast	50.00-52.00

CHICAGO

No. 1 Heavy Melt. Steel	$39.00-39.50
No. 2 Heavy Melt. Steel	39.00-39.50
No. 1 Bundles	39.00-39.50
No. 2 Bundles	39.00-39.50
No. 3 Bundles	37.00-37.50
Machine Shop Turnings	34.00-34.50
Mixed Borings, Turnings	34.00-34.50
Short Shovel Turnings	36.00-36.50
Cast Iron Borings	35.50-36.00
Bar Crops and Plate	46.50-47.00
Punchings	48.00-48.50
Elec. Furnace Bundles	40.00-40.50
Heavy Turnings	38.50-39.00
Cut Structurals	44.00-44.50

Cast Iron Grades

No. 1 Cupola Cast	67.00-70.00
Clean Auto Cast	67.00-70.00
No. 1 Wheels	61.00-62.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	46.00-48.00
Malleable	77.00-78.00
Rails, Rerolling	59.00-61.00
Rails, Random Lengths	51.00-52.00
Rails, 3 ft and under	56.00-57.00
Rails, 18 in. and under	58.00-59.00
Railroad Specialties	54.00-55.00
Angles, Splice Bars	55.00-56.00

ST. LOUIS

No. 1 Heavy Melt. Steel	$40.50-41.00
No. 2 Heavy Melt. Steel	37.50-38.00
Machine Shop Turnings	32.50-33.50
Short Shovel Turnings	34.50-35.50

Cast Iron Grades (Fob shipping point)

No. 1 Cupola Cast	65.00-67.00
Mixed Cast	59.00-60.00
Heavy Breakable Cast	55.00-56.00
Brake Shoes	57.00-58.00
Clean Auto Cast	65.00-67.00
Burnt Cast	59.00-60.00

Railroad Scrap

R.R. Malleable	65.00-70.00
Rails, Rerolling	50.50-52.50
Rails, Random Lengths	50.00-51.00
Rails, 3 ft and under	56.00-58.00
Uncut Tires	48.00-49.00
Angles, Splice Bars	55.00-56.00

BIRMINGHAM

No. 1 Heavy Melt. Steel	$37.50
No. 2 Heavy Melt. Steel	37.50
No. 1 Busheling	37.50
Nos. 1 & 2 Bundles	37.00
No. 3 Bundles	35.00
Long Turnings	24.50
Short Shovel Turnings	26.00-27.00
Cast Iron Borings	25.00
Bar Crops and Plate	40.00
Cut Structurals	38.50

Cast Iron Grades

No. 1 Cupola Cast	63.00
Stove Plate	60.00-62.00
No. 1 Wheels	59.00-61.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	38.00
R.R. Malleable	nom.
Axles, Steel	50.00
Rails, Rerolling	53.00-55.00
Rails, Random Lengths	45.00-48.00
Rails, 3 ft and under	53.00-55.00
Angles and Splice Bars	52.00-53.00

SAN FRANCISCO

No. 1 Heavy Melt. Steel	*$25.00
No. 2 Heavy Melt. Steel	*25.00
No. 1 Busheling	*25.00
Nos. 1 & 2 Bundles	*25.00
No. 3 Bundles	*19.00
Machine Shop Turnings	*15.50
Bar Crops and Plate	25.00
Cast Steel	25.00
Alloy Free Turnings	15.50
Cut Structurals	25.00
Tin Can Bundles	19.00

Railroad Scrap

No. 1 Heavy Melting	26.00
Axles	32.00
Rails, Random Lengths	26.50
Uncut Tires	33.50

* Fob California shipping point.

SEATTLE

No. 1 Heavy Melt. Steel	$26.00
No. 2 Heavy Melt. Steel	26.00
No. 1 Busheling	26.00
Nos. 1 & 2 Bundles	22.00-23.00
No. 3 Bundles	22.00-23.00
Machine Shop Turnings	19.00-21.00
Mixed Borings, Turnings	19.00-21.00
Punchings & Plate Scrap	26.00-28.00
Cut Structurals	26.00-28.00

Cast Iron Grades

No. 1 Cupola Cast	40.00
Charging Box Cast	25.00
Heavy Breakable Cast	24.00
Stove Plate	25.50
Unstripped Motor Blocks	24.00
Malleable	30.00
Brake Shoes	30.00
Clean Auto Cast	30.00
No. 1 Wheels	26.50

Railroad Scrap

No. 1 R.R. Heavy Melt.	22.00
Railroad Malleable	30.00
Rails, Random Lengths	21.50
Angles and Splice Bars	23.00

LOS ANGELES

No. 1 Heavy Melt. Steel	$25.00
No. 2 Heavy Melt. Steel	25.00
Nos. 1 & 2 Bundles	25.00
Machine Shop Turnings	16.00
Mixed Borings, Turnings	15.50-16.00
Punchings & Plate Scrap	28.00
Elec. Furnace Bundles	28.00

Cast Iron Grades

No. 1 Cupola Cast	35.00-36.00

HAMILTON, ONT.

(Ceiling prices, delivered)

Heavy Melt.	$22.00
No. 1 Bundles	22.00
Mechanical Bundles	20.00
Mixed Steel Scrap	19.00
Mixed Borings, Turnings	17.00
Rails, Remelting	28.00
Rails, Rerolling	26.00
Bushelings	17.00
Bushelings, new factory, prep'd	21.00
Bushelings, new factory, unprep'd	16.00
Short Steel Turnings	17.00

Cast Iron Grades*

No. 1 Cast	42.00-48.00
No. 2 Cast	35.00-37.00

* Removed from price control Aug. 9, 1947; quoted on basis of fob shipping point.

51 "NATIONAL SECURITY CLAUSE" PLANTS

For Sale or Lease NOW

The offering of these properties under the provisions of the National Security Clause indicates their essential nature and sound worth.

1

Top-quality Properties

Each of these 51 facilities is a well-constructed, modern property—built during the war years, some equipped with the finest of machinery, tools and fittings. Some are general-purpose plants suitable for ready adaptation. Included, among others, are 12 aircraft and engine factories, 1 petroleum refinery, 4 chemical processing plants, 17 steel foundries, fabricating plants and forge shops, 9 shipyards and 2 brass and 5 light metals facilities.

2

At Favorable Locations

Some of these plants are located in the Atlantic seaboard states; many throughout the humming industrial midwest, south and southwest; others up and down the Pacific coast . . . in large cities and small towns . . . at deep-water ports; strategic locations, every one. Required raw materials are close at hand, profitable markets nearby, transportation facilities excellent and necessary utilities all available.

3

National Security Provision

These properties are offered for sale or lease with provisions for the national security, whereby the Federal Government retains dormant rights to utilize the facilities for production under Government contract. In the event that this dormant right is exercised, the Government will consider the qualifications of the buyer or lessee to carry out such contracts. This may well prove a great advantage to you!

4

Write, Wire, Phone

These properties are offered for sale or lease, in whole, for continuing operation. Write, wire or phone for specific information and for necessary bid forms and helpful advice on how to bid. This advertisement is not a basis for negotiation. War Assets Administration reserves the right to reject any or all bids. Transfer of title will be subject to Executive Order 9908 relative to fissionable materials.

WAR ASSETS ADMINISTRATION

OFFICE OF REAL PROPERTY DISPOSAL

WASHINGTON 25, D. C.

1607-T

U. S. Steel Posts Mill Prices

Changeover to f.o.b. mill method of selling became effective July 13 for corporation's subsidiaries. New price advance to cover increased costs appears imminent

Pittsburgh — In conformity with the change from the basing point method of selling, United States Steel Corp.'s subsidiaries issued new price schedules last week. These schedules cover prices at which its products within the range of sizes, grades, finishes and specifications produced may be purchased at its plants. Delivered prices reflecting actual transportation charges to destination also will be quoted. These prices apply on carload lots and became effective with shipments made on and after 12.01 a. m., July 13.

These prices do not reflect increases soon to be made effective to cover increased wage, coal, freight and other costs.

Prices are subject to seller's current list of extras and deductions and standard conditions of sales. All sales are subject to seller's price in effect at time of shipment.

The following prices, quoted by Carnegie-Illinois Steel Corp., Pittsburgh, reflect no change from the preceding schedule of basing point prices.

CARNEGIE-ILLINOIS STEEL CORP.

Carbon Steel

(Per Net Ton)

Ingots (forging quality)	$46.00
Blooms, billets & slabs (forging quality)	$54.00
Blooms, billets & slabs (rerolling quality)	$45.00

(Cents per Lb.)

Skelp	2.90
Bars and bar shapes	2.85
Hoop (tight cooperage)	3.10
Floor plates	4.05
Plates	2.90
CB sections	2.70
Standard structurals	2.75
Reinforcing bars (new billet)	2.70
Bearing piles (CBP sections)	2.70
Sheet piling	3.30
Standard tee rails:	
No. 1 O.H.	2.70
No. 2 O.H.	2.60
All No. 2 O.H.	2.65
Light rails	3.05
Joint bars & standard rails	2.75
Tie plates	3.55
Axles	4.45
Strip, hot rolled	2.75
Sheets:	
Hot-rolled, 18 ga. & hvr.	2.75
Cold-rolled	3.45
Electric (electrical grade)	5.20
Galvanized	3.85
Galv. flat culvert—copper steel	4.45
Galvanized	4.40
Long terne, commercial quality	4.05
Vitrenamel	3.85
Holloware enameling black plate	4.65

(Per Pkg.)

Roofing, short ternes 8 lb. coated	$15.30

High Strength Steel
Corten

(Cents per Lb.)

Bars & small shapes	4.35
Plates	4.45
C.B. sections	4.20
Standard structurals	4.20
Strip, hot-rolled	4.20
Sheets:	
Hot-rolled	4.20
Cold-rolled	5.20
Galvanized	5.90

Man-Ten

Bars and small shapes	3.65
Plates	3.95
C.B. sections	3.70
Standard structurals	3.70
Strip, hot-rolled	3.60
Sheets, hot-rolled	3.60

Abrasion Resisting

Plates	4.05
Bars & Bar shapes	3.80
Sheets, hot-rolled	3.90
Strip, hot-rolled	3.90

Alloy

(Per Gross Ton)

Ingots	$56.00
Blooms, billets & slabs	$66.00

(Cents per Lb.)

Hot-rolled bars	3.20
Bar shapes	3.45
Plates	3.70
Structural shapes	3.45
Strip, hot-rolled	4.60

Prices for other products sold by Carnegie-Illinois but not listed above will be quoted upon application.

AMERICAN STEEL & WIRE CO.

The following prices, quoted by American Steel & Wire Co., Cleveland, reflect no change from present basing point prices with the exception of the Worcester district, where differentials have been increasd slightly and in Duluth, where existing differentials have been eliminated.

Wire rods, carbon: Donora, Cleveland, and Joliet, 2.80c; Worcester, 3.10c.

Cold-rolled carbon strip: Cleveland, 3.45c; New Haven, 3.95c.

Cold-finished carbon bars: Waukegan, Cleveland, and Donora, 3.45c.

Cold-rolled alloy strip: Cleveland, 9.35c; Worcester, 9.65c.

Cold-finished alloy bars: Waukegan, Cleveland and Donora, 4.00c; Worcester, 4.30c.

Hot-rolled alloy rods: Cleveland, Joliet, and Donora, 3.20c; Worcester, 3.50c.

Cold-rolled strip (Hi-strength) Cleveland, 5.00c.

Wire (manufacturers' bright, low carbon): Joliet, Waukegan, Cleveland, Donora, Duluth, and Rankin, 3.45c; Worcester, 3.75c.

Spring wire, high carbon: Waukegan, Cleveland, Donora, and Duluth, 4.50c; Worcester, Trenton, and New Haven, 4.80c.

Flat wire: Cleveland, 4.45c; Worcester, 4.75c.

Nails and staples: Donora, Joliet, Rankin, and Duluth, column 91; Worcester, column 97.

Wire, merchant quality: Cleveland, Donora, Joliet, Rankin, and Duluth, 4.10c and 4.55c for annealed and galvanized respectively; Worcester, 4.40c and 4.85c respectively.

Wire, barbed: Donora, Rankin, Joliet, and Duluth, column 111.

Woven fence: Donora, Joliet, Rankin, and Duluth, column 97.

Bale Ties: Donora, Joliet, and Duluth, column 94.

Fence posts: Duluth, column 104.

NATIONAL TUBE CO.

National Tube Co., Pittsburgh, announced that its products may be purchased at its plants at mill prices which reflect no change in present basing point prices. These prices will apply at the following points of production:

Buttweld standard and line pipe: Lorain, O.

Seamless standard and line pipe and large O.D. pipe: Lorain, O., with some incidental production at its option at McKeesport, Pa.

Seamless casing, drill pipe, and N-80 tubing: McKeesport, Pa., with some incidental production at its option at Lorain, O.

Seamless oil well tubing (grades J-55 and H-40): Lorain, O.

Seamless hot-rolled and cold-drawn pressure and mechanical tubing, carbon and alloy: Ellwood City, Pa., with some incidental production at its option at Gary, Ind.

All orders now on National Tube's books which call for delivery at destination will be shipped to the destination specified, priced at the producing mill in accordance with the above, and will be shipped freight collect, with actual freight from the shipping point to destination for customer's account.

Prices are subject to seller's current list of extras and deductions and standard conditions of sales. All sales are subject to seller's price in effect at time of shipment.

TENNESSEE COAL, IRON & RAILROAD CO.

The following prices, posted by Tennessee Coal, Iron & Railroad Co., Birmingham, reflect no change from present basing points:

	Bessemer	Ensley	Fairfield
	($ per net ton)		
Billets, blooms and slabs			
Rerolling		$45	$45
Forging		54	54
	— $ Per 100 lb —		
Wire rods			$2.80
Sheets			
Hot-rolled (18 Ga. & hvr.)			2.75
Hot-rolled annealed (19 Ga. & lgtr.)			3.65
Cold-reduced			3.45
Galvanized			3.85
Hot-rolled strip	$2.75		2.75
Bars and small shapes	2.85		2.85
Reinforcing bars			2.70
Special tool steel	9.50		
Plates, carbon	2.90		2.90
Standard structurals	2.75		2.75
Standard rails		$2.70	
Light rails		3.05	3.05
Splice bars			3.75
Tie plates			3.55
Track Spikes			4.85
Axles			4.45
Cor-Ten			
Hot-rolled sheets			4.20
Hot rolled strip	4.20		4.20
Bars and small shapes	4.35		4.35
Plates	4.45		4.45
Standard structural shapes	4.20		4.20
Wire			
Bright low-carbon			3.45
Merchant quality:			
Annealed			4.10
Galvanized			4.55

	Columns in Price List
Nails and staples	91
Barbed wire	111
Woven fence	97
Bale ties	94

GENEVA STEEL CO.

The following schedule of mill prices issued by Geneva Steel Co., Geneva, Utah, reflects no change from the preceding basing point prices:

	Per 100 Lb.
Structural shapes	$2.75
Plates:	
Carbon	2.90
Corten	4.45
Manten	3.95
Pig iron, foundry grade, per gross ton	$40.50

COLUMBIA STEEL CO.

The following schedule of prices was issued by Columbia Steel Co., San Francisco:

	Torrance	Pittsburg
	Per 100 Lb.	
Structural shapes	$3.35	
Tie plates		$3.70
Bars:		
Hot-rolled	3.55	3.55
Concrete reinforcing	3.30	3.30
Sheets:		
Hot-rolled (18 Ga. & hvr.)	3.45	3.45
Hot-rolled annealed (19 Ga. & lgtr.)	4.55	
Hot-rolled drum	3.45	3.45
Galvanized	4.60	4.60
Galvanized culvert	5.20	5.20
Well casing	4.25	
Hot-rolled strip	3.50	3.50
Hot-rolled rods		3.45
Non-stand. nails and staples		5.60
Wire:		
Annealed, merchant		5.05
Galvanized, merchant		5.50
Bright basic		4.40
Annealed, in stones		8.70
Galvanized, in stones		10.20
MB spring		5.80
Columbia spring		5.45
Bright stapling		7.35
Tire bead		10.30

	Columns in Price List
Barbed & twisted	131
Gal. woven wire fence	120
Single loop bale ties	118
Stand. nails and staples	112

Bethlehem's Mill Prices

Bethlehem, Pa. — Bethlehem Steel Co., in switching over from a basing point method of selling, has announced the following mill prices which reflect no change from its recent basing point prices. They were effective July 13 and apply only to sizes, grades and finishes and specifications manufactured at the respective mills:

Steel piling, Lackawanna, 3.30c; hot rolled carbon plates, sheared and universal, 10 inches and over, Sparrows Point and Johnstown, 2.95c, and continuous strip plate, Lackawanna, 2.95c.

H. R. Mayari alloy, sheared and universal plate, 10 inches and over, Sparrows Point and Johnstown, 4.55c.

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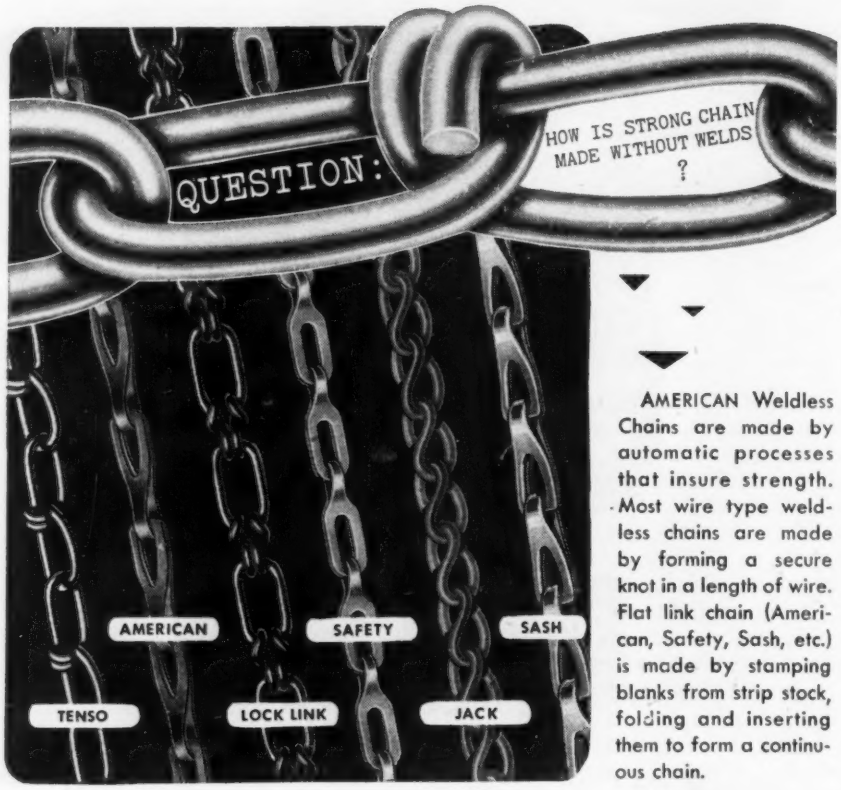

AMERICAN Weldless Chains are made by automatic processes that insure strength. Most wire type weldless chains are made by forming a secure knot in a length of wire. Flat link chain (American, Safety, Sash, etc.) is made by stamping blanks from strip stock, folding and inserting them to form a continuous chain.

AMERICAN WELDED AND WELDLESS CHAIN

Shown here are some of the more popular AMERICAN weldless chains. AMERICAN CHAIN also offers a complete line of electric welded and fire welded chain—chain fittings and assemblies—repair links—cotter pins—hooks. Whatever your chain needs, get in touch with your AMERICAN CHAIN distributor.

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AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

In Business for Your Safety

H. R. sheets, 72 inches and narrower, Lackawanna, 2.80c, and 60 inches and narrower, Sparrows Point, 2.80c; C. R. sheets, 11 gage and thinner and 72 inches and narrower, Lackawanna, 3.55c; C. R. sheets, 14 gage and thinner and 48 inches and narrower, Sparrows Point, 3.55c; galvanized sheets, 10 gage, 48 inches and narrower, Sparrows Point, 3.95c; galvanized culvert, 16 gage, Sparrows Point, 4.60c.

H. R. strip, produced on sheet mill, Lackawanna and Sparrows Point, 2.80c; C. R. strip, produced on sheet mill, Lackawanna and Sparrows Point, 3.55c.

Mayari H. R. sheets, 72 inches and narrower, Lackawanna, 4.30c, and 60 inches and narrower, Sparrows Point, 4.30c; Mayari C. R. sheets, 13 gage and thinner and 60 inches and narrower, Lackawanna, 5.30c, and Mayari C. R. sheets, 14 gage and thinner and 48 inches and narrower, Sparrows Point, 5.30c; Mayari galvanized sheets, 10 gage base, 48 inches and narrower, Sparrows Point, 6.00c; Mayari H. R. strip, produced on sheet mill, Lackawanna and Sparrows Point, 4.30c; Mayari C. R. strip, produced on sheet mill, Lackawanna and Sparrows Point, 5.30c.

New built concrete reinforcing bars for shipment from rolling mills for fabricators and jobbers, Lackawanna, Sparrows Point and Johnstown, 2.75c.

Standard tee rail, No. 1, over 60 lb per yard, Steelton, Lackawanna and Sparrows Point, 2.75c; standard tee rail, No. 2, over 60 lb per yard, Steelton, Lackawanna and Sparrows Point, 2.65c.

Joint bars for rail, over 60 lb per yard, Steelton, Lackawanna, 3.85c; tie plate for rail over 60 lb per yard, Steelton and Lackawanna, 3.65c; girder No. 1 rail, Steelton, 3.20c, and girder No. 2 rail, Steelton, 3.10c; channel splice bar for girder rail, Steelton, 4.70c; light tee rail, 40 lb and under, Johnstown, 3.10c, and light tee rail, 60 lb per yard and under, Lackawanna, 3.10c.

Re-rolling blooms, billets and slabs, Lackawanna and Johnstown, $45 per net ton; forging blooms, billets and slabs, Lackawanna and Johnstown, $64.

Alloy blooms, billets and slabs (except Mayari), Bethlehem, Lackawanna and Johnstown, $66 per gross ton.

H. R. carbon bars and small shapes, Lackawanna and Johnstown, 2.90c; H. R. alloy bars (except Mayari), Bethlehem, Lackawanna and Johnstown, 3.30c; H. R. Mayari bars and small shapes, Bethlehem, Lackawanna and Johnstown, 4.45c; C. F. alloy steel bars, Bethlehem and Lackawanna, 4.10c.

Effective July 14, Bethlehem also named the following mill prices, which are applicable only to sizes, grade, finish and specifications manufactured at the respective mills:

H. R. carbon shapes, wide flange, BJ, BL and BS sections, Bethlehem, 2.80c; small sized handles down to 1-1/4 inch by 1-1/4 inch, inclusive, Bethlehem, 3.00c; standard sections, Lackawanna and Johnstown, 2.80c; H. R. Mayari shapes, wide flange, standard, BJ, BL and BS sections, Bethlehem, 4.30c, and standard sections, Lackawanna and Johnstown,

4.30c.

Wire rods, basic and acid open-hearth, bessemer, 7/32 to 3/8 inch inclusive, Johnstown, 2.80c, and basic open-hearth, bessemer, not re-sulphurized, 7/32 to 47/64 inch inclusive, Sparrows Point, 2.90c.

Nails and staples, stock items, Johnstown, Key 91 and Sparrows Point, Key 93, and non-stock items, Johnstown, Pa., 4.60c, and Sparrows Point, 4.70c.

Miscellaneous wire nails, Sparrows Point, 67-1/2 minus 2-1/2 per cent off; barbed wire and 2-ply twisted barbless, Johnstown, Key 111 and Sparrows Point, Key 113.

Galvanized fence wire, No. 9 to 15-1/2 gage inclusive, Johnstown, Key 97, 17 gage "chick," 4-inch stays, Johnstown, Key 174, and 17 gage "chick," 6-inch stays, Johnstown, Key 171.

Bale ties, single loop, Sparrows Point, Key 96; fence posts, Johnstown, Key 105.

Manufacturers' carbon steel, coarse round wire, Johnstown, 3.45c, Sparrows Point 3.55c; spring wire, Johnstown, 4.50c, Sparrows Point and Williamsport, 4.60c.

Manufacturers' bright high carbon wire, Johnstown, 4.85c, Sparrows Point 4.95c.

Annealed fence quality wire, 6 to 8 gage, Johnstown, 4.10c, Sparrows Point, 4.20c; galvanized fence quality, 6 to 8 gage, Johnstown, 4.55c, Sparrows Point, 4.65c; annealed stone wire, 16 gage, Johnstown, 7.75c, and Sparrows Point, 7.85c, and galvanized stone wire, 16 gage, Johnstown, 9.25c, Sparrows Point, 9.35c.

Track spikes, Lebanon, Pa., 4.85c.

Forged steel axles, untreated and not machined, Johnstown, 4.50c; one wear car wheels (AAR) Class A-33, Johnstown, $31.50 each, and Class D-33, Johnstown, $33.50 each.

Wire . . .

Wire Prices, Page 147

Boston — Price differentials on wire rods and finished wire products are increased to $6 ton, Worcester, in mill pricing revisions by American Steel & Wire Co. They have been on the average $2 ton. Listed at 3.10c, Worcester, wire rod cost to consumers is $4 a ton higher with freight added. Rods have been quoted 2.90c, Worcester. The 2.80-cent price for Cleveland and other ASW mill points is unchanged at 2.80c. On finished wire, the $6 higher differential generally applies on bright low-carbon manufacturers' wire, high-carbon spring wire, flat wire and merchant quality wire.

Chicago—Consumers of wire are devoting time to calculation of what their wire is going to cost them delivered now that f.o.b. mill has been announced by the leading producer in this district. For those consumers who have been receiving their requirements from local mills, cost is unchanged by this factor. At the moment, however, availability is of more importance than price. For merchant products, stocks are low and unbalanced, and third quarter quotas suggest that no relief is ahead. In rural areas, shortage of nails is the worst of any time this year, in metropolitan areas the scarcity is acute.

Bertha... "THE SEWING MACHINE GIRL" is really cozy now!

How to keep 25,000 square feet of unbroken floor area warm enough that women's fingers could keep pace with high speed sewing machines, even on coldest days? Mr. M. M. Barry, manager of the Connellsville Sportswear Company, a garment manufacturing plant in Connellsville, Pennsylvania, had this seemingly expensive heating problem to solve.

Mr. Barry found a simple, low-cost solution by providing heat directly at working level with Dravo *Counterflo* Heaters. Four heaters, one on each wall, blanket the factory working area with a draft-free "cross-fire" of warm air above the heads of the workers. Heat distribution is uniform at 72 to 75 degrees throughout.

Completely automatic, the Dravo *Counterflo* Heaters require only a fuel line, power line and short vent stack—no boiler room. The thermostat is lowered or shut off completely at night for additional, important economies.

Dravo heaters produce warm air quickly. Sturdy, carefully engineered construction, plus a stainless steel combustion chamber, minimize maintenance cost. Equally efficient with oil or gas, sizes ranging from 400,000 to 2,000,000 BTU per hour output are available. A touch of the selector switch converts them immediately to high-capacity air-circulating units for summer use.

If you would like more information to help solve your own heating problems, write for Bulletin JD-516, Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pennsylvania.

Living room comfort speeds production and cuts absenteeism in this modern garment manufacturing plant. As the manager, Mr. Barry says, "Women employees cannot be expected to operate sewing machines properly if their hands and feet are cold or if they are otherwise uncomfortable."

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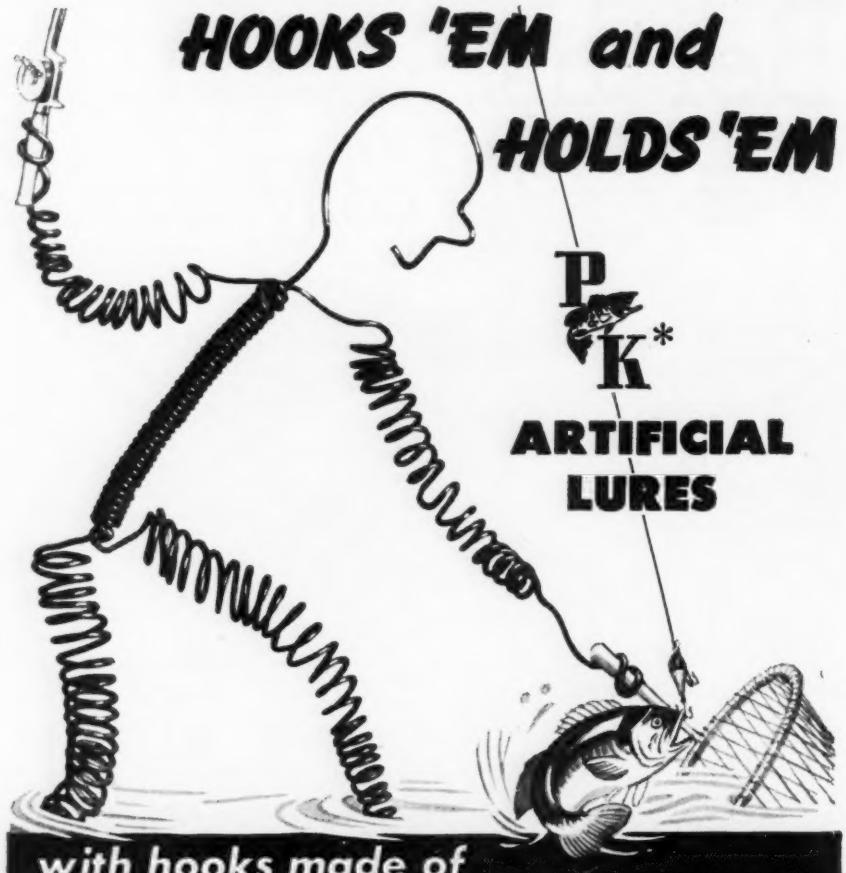

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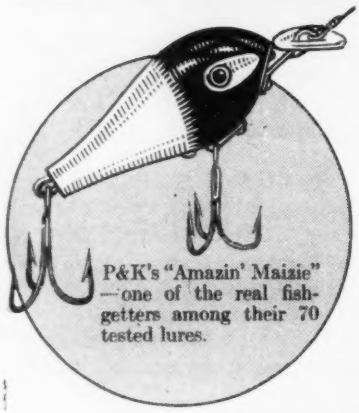
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Sheets, Strip . . .

Sheet Prices, Page 146

New pricing basis puts added pressure on sellers to accommodate new customers

New York—The prospect of all mills going on an f.o.b. mill basis, thus following the lead of the major producer, has resulted in considerable pressure being placed on district sales offices by sheet consumers for tonnage. Buyers point out that the mills, in switching over to an f.o.b. mill or shipping point basis, no longer have to reckon with absorption of freight rates and that, therefore, they should be willing to supply them with a larger amount of steel.

However, some district offices reply that the present change in quoting is being set up on a permanent basis, at least insofar as can be determined at this time, and that it behooves their mills to set up more definite connections with consumers nearer their own steel producing centers.

Consumers, on the other hand, place hope on the possiblity that by the time general conditions do ease and thus assume a more normal aspect legislative action may bring the multiple basing point system back into legal favor. Some steel sellers, however, reply that this can in no way be counted upon with assurance.

In various instances, the general switching over by the steel industry to the f.o.b. mill or shipping point method will not create the disruption generally assumed, for the reason that some of the independents have long since withdrawn from the eastern seaboard market. In one or two cases at least, this process has been going on for three or four years. They have steadily reduced the scope of their trade and within this scope have been reducing the amount of sheets supplied. However, there will be few consumers indeed, except those who have deep-rooted connections with certain mills, who will not feel the shock of the present change-over.

While some mills will hasten their withdrawal from the local market, indications are that the leading producers will move slowly, if moving at all at this time. Certainly, it appears that the seller will continue to supply its regular trade as long as the trade is willing to absorb the extra freight rate.

The attitude of the principal eastern producer of sheets, so far as can be acertained, will continue.

For the present, no change in the minimum delivered New York prices of the principal sheet preducts is indicated.

Philadelphia — Alan Wood Steel Co., Conshohocken, Pa., plans to close down its sheet and specialties mill during the first two weeks in August for vacations.

Boston — Although a substantial producer of narrow cold-rolled strip, New England's output of hot-rolled for sale is negligible. Higher prices are ahead, but the cold mill level depends on the ultimate hot-rolled price and sources of supply involving freights. Bulk of hot tonnage for

cold reduction carries a 67-cent rate to Boston per 100 pounds; small volume of specialties and alloys is available at lower carrying charges, but the 67-cent rate applies generally for low and high carbon. In effect, the non-integrated processor of steel, which includes the cold-strip mill, always more or less caught in a squeeze, is likely to become more pinched. Depending on what revisions are made in mill base prices, consumer carbon sheet costs may be more easily clarified; Sparrows Point will continue to be the nearest base point for considerable carbon sheet tonnage, but metal shops buying from Pittsburgh and other points stand to pay more. Under the delivered basing point system, the more distant mills met the Sparrows Point competition and absorbed freights, although admittedly several withdrew from this territory or limited sales to products commanding the more favorable margins.

New Haven, Conn., is made a mill f.o.b. base by American Steel & Wire Co. for cold-rolled carbon strip at 3.95c a pound, or $10 a ton higher than Cleveland. On a Worcester base, cold strip, 0.25 carbon and less, has been selling at 3.75c with some tonnage at 3.65c. These changes increase the price substantially to numerous users.

American Steel & Wire Co. fixes its cold-rolled alloy strip base at Worcester at 9.65c, or $6 a ton over Cleveland. Hot-rolled strip remains 2.75c, Pittsburgh.

Pittsburgh—Pressure of demand continues as great as ever with little prospect for any material change in conditions for some time to come. Abolition of the basing point system by leading sheetmakers has not caused undue concern among consumers because price is a secondary consideration at the moment. For the long term, however, a rather gloomy view of the outlook is taken. Immediate Pittsburgh district sheet buyers, it is believed, will be benefitted by the move in that a surplus of sheets may be available in the area when buyers distant from the district make new supply connections nearer their plants. However, there is the possibility fabricating concerns may be attracted to Pittsburgh in sufficient number to more than take up any slack which now may be threatened. Meanwhile, chief hope for avoiding serious difficulty rests on the chance legislative action may be taken in time to permit the erection of a pricing system which would permit Pittsburgh producers to meet competition pricewise outside the Pittsburgh consuming area. At the moment, it looks as though another price increase is in the making as the result of a third round of wage increases pending. Most sheetmakers are following the move of the Steel corporation and quoting sheets on an f.o.b. plant basis.

Chicago—With only the leading producer of sheets and strip in this district having announced its adoption of f.o.b. mill pricing, consumers are waiting for other producers to state their position. Consumers are wondering whether the latter will also name former basing point prices as mill prices. Consumers are pressing for deliveries, taking all of their mill quotas.

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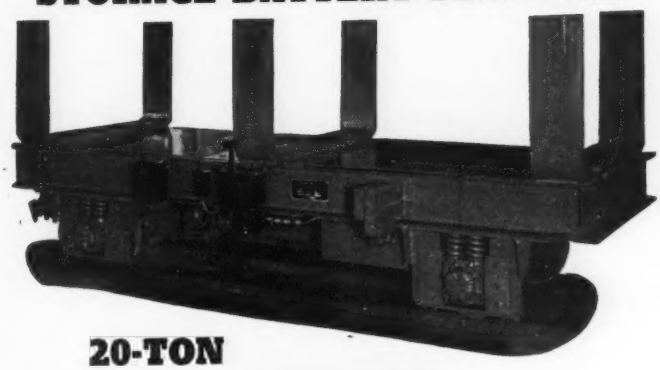

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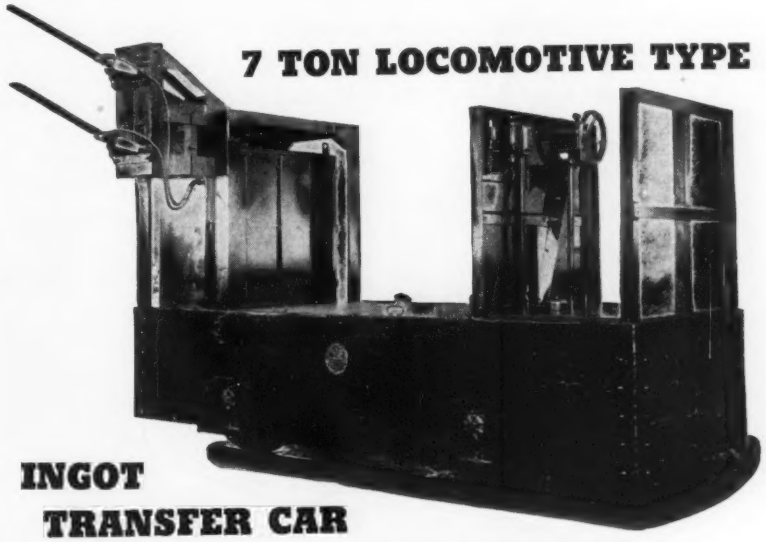

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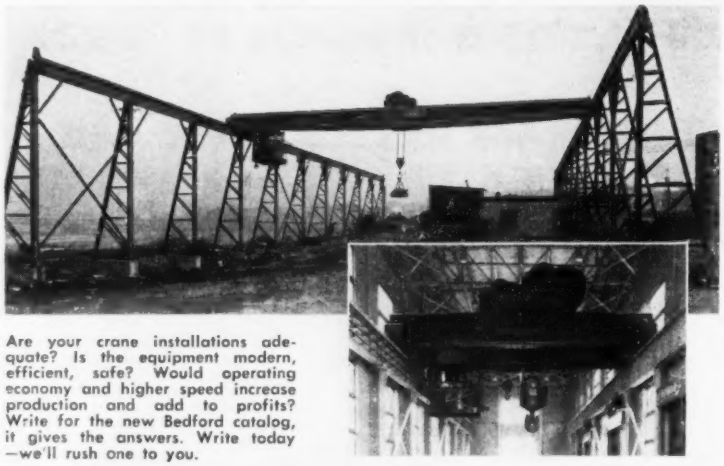

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Steel Bars . . .

Bar Prices, Page 146

New York — With the general shifting of the industry from the multiple basing point system to the f.o.b. mill, or shipping point, method of quoting, Johnstown, Pa., is coming in for greater consideration by hot carbon bar consumers here. Under the multiple basing point system, Buffalo has been the governing production center for New York buyers, with a freight rate of 53 cents per hundred pounds. The freight rate from Johnstown, Pa., to New York is 49 cents. Thus, on the basis of this applicable rate, Johnstown will be the governing producing center for hot carbon bars for shipment here.

Bethlehem, Pa., with a freight rate of 26 cents, has a fairly substantial capacity for the production of bar angles.

Boston—End result of f.o.b. mill selling of steel bars is higher prices for many consumers, notably hot-rolled carbon, with users paying the freight; impact on grades and sizes rolled at Buffalo and priced at that point will be less than for most other districts. In the matter of cold-finished bars a confused price situation looms.

Philadelphia — Changeover to an f.o.b. mill or shipping point system sets up Johnstown, Pa., on a parity with Pittsburgh as a governing base for hot carbon bars for shipment into this district. The freight rate from Johnstown to Philadelphia is 44 cents per 100 pounds, against 49 cents from Pittsburgh, but the base at Johnstown is five cents higher, at least as compared with that of the leading producer in the Pittsburgh area, thus offsetting the five-cent differential.

Local consumers of cold-finished alloy bars gain by the change in the steel mills' method of quoting, with Bethlehem, Pa., now the governing base. At that point, the mill price is 4.10c, with the freight into Philadelphia amounting to 0.18c. The spread of mill prices at Pittsburgh is 4.00c to 4.10c, and with the freight rate amounting to 0.49c. The cost to consumers of bringing in cold alloy bars from Pittsburgh is 4.49c to 4.59c, against 4.28c from Bethlehem under the new set-up. Bethlehem has been and continues to be a governing point on hot alloy bars.

Cleveland — Additional strength is noted in demand for alloy bars, and with mill deliveries now extended to almost the end of the year buyers who ordinarily would depend on mills are now calling upon warehouses for supplies.

To cover a 14-cent-an-hour wage increase effective July 1 and other higher costs of operation, Timken Roller Bearing Co., Canton, O., advanced prices on all its steels, including alloy, 5 per cent July 6. The company has been selling on an f.o.b. mill basis.

Chicago—Activity of forging shops is at high level, but is regulated by supply of steel. Demand for forging bars, both carbon and alloy, exceeds mill quotas by a large margin. Forgers are trying to figure out where they stand as to cost of steel delivered in connection with the new f.o.b. mill pricing, but are unable to get far until mills have announced their positions.

Agree on Clad Plate Output

Philadelphia — Jessop Steel Co., Washington, Pa., and Worth Steel Co., Claymont, Del., have entered into a working agreement for large scale production of stainless-clad plates and flanged, or flanged and dished, heads to be sold under trade name of Ferro Bond.

As the trade name indicates, this material will be produced by following the patented Armstrong process.

Increased uses are anticipated in petroleum, chemical, food, and transportation industries. Production to date assures the availability of Ferro Bond in substantial quantities for favorable deliveries.

Processing of the clad plates is to be done entirely at Claymont, with Jessop furnishing the alloy lines.

Plates . . .

Plate Prices, Page 147

New York—Despite the general switch to an f.o.b. mill or shipping point basis, the minimum deliverd plate price here continues at 3.33c per pound. This price is predicated on 2.95c, Sparrows Point price plus a 0.38-cent freight rate. Other eastern producers as has been the case for a considerable time, have been quoting premiums which have offset lower freight rates into New York. Thus, the Claymont, Del., producer is quoting 3.65c, that point (New York freight 0.30 cent; Coatesville, Pa., mill, 3.45c, that point (New York freight 0.31 cent); Conshohocken, Pa., mill 3.45c base Claymont (New York freight 0.30 cent) and Harrisburg, Pa., mill, 5.10c, basing points (New York freight from Claymont 0.30 cent). The leading Pittsburgh district producer continues to quote 2.90c, mill (New York freight 0.56 cent.)

The two larger producers, referred to above, have definitely indicated their intention of shifting to an f.o.b. mill or shipping point basis with the Pittsburgh seller having already made the change effective. The other is expcted to make the change effective momentarily. One or two of the remaining four mills have been practically on an f.o.b. mill basis for some time.

Boston—Normal relationship between supply and demand would have long since narrowed or eliminated the spread in delivered carbon plate costs to fabricating shops in this district; this price range will be further scrambled by the selling of Pittsburgh district and Ohio mill tonnage on an f.o.b. basis. Up to now the competitive delivered price from Sparrows Point has been met on most carbon plate tonnage; latter point is not the nearest producing base, but selective selling moved bulk of ordinary carbon plate volume to the Maryland mill delivered price level. Until over-loaded, considerable tonnage, undesirable to most eastern producers, has been shipped by a leading Pittsburgh district mill, a 67-cent per 100-pound freight seller, among the least selective. A substantial plate volume has been coming into New England on which the seller has absorbed freight to the tune of $2 and more per ton. This is now ending; the fabricator pays the freight. At the moment, all this price conjecture is subjugated to supply, but there will come a time when dollars will influence plate and other steel distribution more than now. Carbon steel plates, delivered to Boston from Pittsburgh, are now 3.57c per pound compared with 3.51c from Sparrows Point with a 2.95c base price; floor plates, Boston, from Pittsburgh, are 4.72c.

Philadelphia — Plate prices here have been affected in one major respect by the shift to the f.o.b. mill or shipping point system; that is, by the leading Pittsburgh producer being no longer able to equalize with the delivered price from Sparrows Point, which is the governing base because of the higher mill prices which have been and are being quoted by producers nearer Philadelphia. The delivered Sparrows Point price here is 3.21c, predicated on a 2.95 cent Sparrows Point base and a freight rate of 0.26 cent. The delivered price from Pittsburgh now is 3.39c, predicated on a 2.90-cent mill base and a freight rate of 0.49 cent.

As the shift to the f.o.b. mill system continues, there will be one or more minor pricing changes here on plain carbon plates, and an important change on floor plates, which up to this time have been quoted on a Pittsburgh base on shipments into this district.

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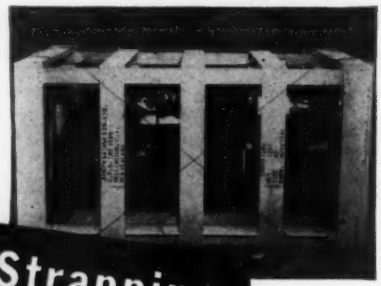

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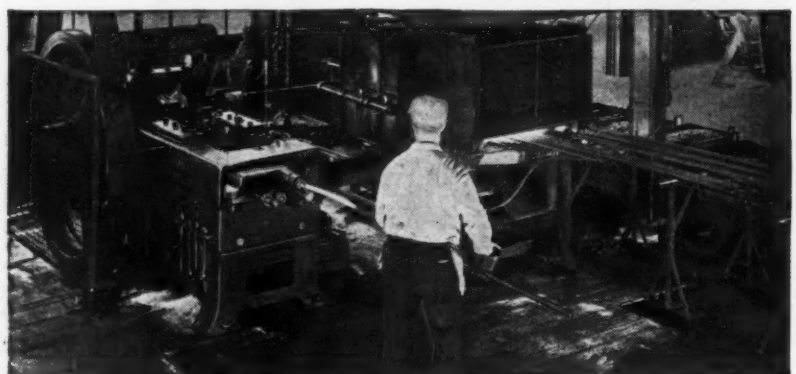

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Structural Shapes . . .

Structural Shape Prices, Page 147

Boston — Harris Structural Steel Co., New York, will fabricate 8500 tons, first section, East Boston express highway, the largest recent structural letting. Inquiry coming up for estimates covering public work, including bridges, is well maintained, but there is a slump in private construction. New Hoosac pier, Boston, closing July 30, takes close to 1000 tons. Effect of the mill basing point for shapes is reflected on structurals; shops fabricating plain material from Bethlehem pay unchanged prices unless the mill price is revised, but will pay more for tonnage originating in the Pittsburgh district, depending on the base quotation. Difference in freight to Boston between the two producing points is $3.80 a ton.

New York—District fabricators, depending upon shapes from Pittsburgh, will have to pay about $5 a ton higher, as a result of the shift to the f.o.b. mill system of quoting. This conclusion is predicated on a 2.75c price at Pittsburgh, plus a 0.56c freight rate, compared with a 2.80c Bethlehem, Pa., price, plus a 0.26c freight rate. The shift is resulting in no change in the minimum delivered price of 3.06c, which represents the Bethlehem price plus the rate. Structural demand continues fairly brisk.

Philadelphia — Local fabricators will find it much more costly in bringing in shapes from Pittsburgh under the new f.o.b. mill or shipping point system. On the basis of current Pittsburgh mill prices and freight rates, they will have to pay 3.24c to 3.29c, instead of 2.98c, where prices were equalized with the delivered quotations from Bethlehem.

Structural activity reflects an improvement in demand for small projects, although 1400 tons for the Vine St. bridge is reported placed through the Golden Construction Co.

Tubular Goods . . .

Tubular Goods Prices, Page 147

New York — Of all the various steel products consumed here, merchant pipe will probably be most affected by the change-over of the steel industry to an f.o.b. mill or shipping point basis. As a result of this shift, Sparrows Point, with an applicable freight rate, will now be the governing producer of butt weld, lap weld and galvanized pipe for shipment to this area. Other products next in line appear to be hot carbon bars, and possibly certain wire products.

Warehouse . . .

Warehouse Prices, Page 149

Boston — Steel distributors vociferously claim New England warehouses are not getting their share of steel products in short supply as compared with other sections closer to mills. Where, they ask, goes the new-found tonnage, resulting from withdrawals by eastern mills from the midwest and west. Most give their own answer by claiming fabricators and jobbers closer to mills

are getting it. They question allocation policies based on 1939-41 distribution in view of conditions currently.

Philadelphia — Higher prices out of warehouse are in prospect here, but it is likely there will be no sweeping changes until prospects clarify. Jobbers are counting on having to take into consideration not only the effects of the shift of producers to the f.o.b. mill or shipping point system, but those scheduled to result from higher mill prices and further increase in freight rates.

Pittsburgh — Jobber inventories are unbalanced and the demand is so heavy and pressing there is little chance for improvement.

Switch from the basing point method of pricing steel presents warehouses with a severe pricing problem. As a general thing, warehouses buy from a number of supply sources and under the f.o.b. plant pricing system this means various prices will apply on materials brought into warehouses. The jobbers may average these prices and quote on a separate plant basis. Shipping charges from warehouses may be based on costs of handling and shipping by the individual warehouse. This means that varying delivered prices are likely to be quoted within a marketing area.

Expectations are warehouse prices will rise in step with any advance effected by the mills.

Cleveland—Additional demand was thrown on warehouses here by a fire which swept U. S. Steel Supply Co.'s old Cleveland warehouse on East 39th St. Until wreckage can be cleared away, full loss to steel stocks cannot be determined. Although stocks were somewhat low, a car of carbon sheets had arrived shortly before the fire. All records were destroyed and consequently a complete inventory of the wreckage must be made before total loss can be determined, but it was estimated 2500 tons of steel were in stock.

Chicago—New f.o.b. mill pricing of steel will affect warehouse pricing system, but to what extent is not evident at this time. Concurrent with United States Steel Corp. f.o.b mill price announcement its warehouse subsidiary went to the f.o.b. warehouse basis but made no formal announcement. Other warehouses, obtaining their supplies from a variety of widely located mills, have taken no action.

Iron Ore . . .

Iron Ore Prices, Page 148

New York—Swedish basic iron ore, 60-68 per cent, is higher at 14.50 cents per unit, c.i.f. Atlantic ports.

Pig Iron . . .

Pig Iron Prices, Page 148

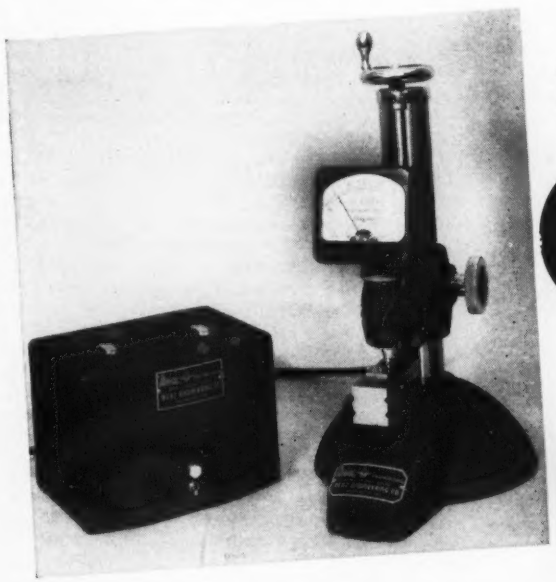
New York — District pig iron consumers would not be surprised to see higher prices shortly. However, such increases as may develop would come, it is believed, as a result of higher furnace costs and thus higher furnace prices; not as a result of a change in the method of quoting. Furnaces shipping into this territory have long been doing so on an f.o.b. basis. Thus, the general switch by the steel industry to the f.o.b. mill shipping point basis will not in any way influence the method of quoting on the principal grades of iron for shipment here.

Fact that Mystic furnace has been forced to suspend for three to four months for repairs has added pressure for tonnage.

Oven foundry coke has been advanced $1 a ton at the Kearny, N. J., ovens to $21.50, effective July 15.

Boston—Mystic furnace at Everett is down for relining, halting production three to four months; a breakthrough came without previous indication of failure and, after banking, investigation proved relining necessary. This cuts off better than 90 per cent of iron melted by New England foundries, including malleable, and comes at a time most shops have meager reserves, equivalent in some instances to only a few days to three weeks' supply. There are no reserve stocks at the Mystic yard.

Philadelphia — Licensed inquiries for pig iron are beginning to appear, as greater pressure is being placed on products for tonnage for housing requirements. With the final settlement last week in the dispute between the miners and captive mine



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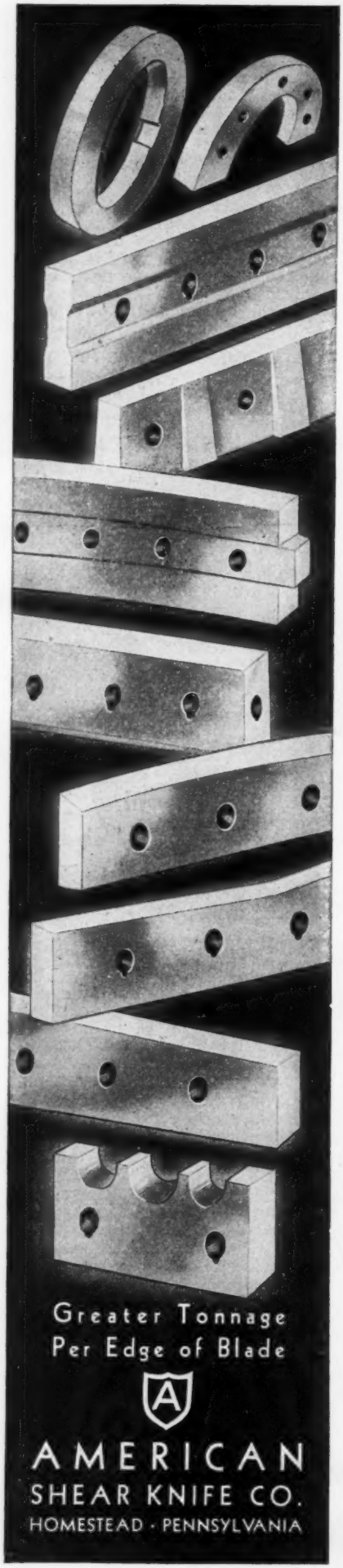

operators, the leading eastern pig iron producer is bringing in additional furnaces, which is helping to relieve the situation somewhat. Also encouraging is the fact that Swedeland, Pa., producer is ahead of schedule on making repairs to its merchant stack, with a result that production may get under way by early in August.

Higher prices on pig iron are expected shortly, although action may be preceded by another increase in this district by producers of oven coke, in line with recent revisions announced in seaboard districts to the north. Oven coke production by one district producer dropped to 50 per cent of capacity before coal miners, out in sympathy with captive mine workers returned to the pits.

Cleveland — Pickands Mather & Co. increased merchant pig iron prices $4 a gross ton July 12 at Erie, Pa., Toledo, O., Chicago and Duluth, making the new price of basic $42.50 at the first three cities and $43.00 at Duluth.

While demand for foundry iron remains unabated the supply has fallen as result of unexpected furnace breakdowns. Indications of a strengthening in the scrap market likely will spur foundries to push increasingly harder for the reduced supply of iron.

Pittsburgh—Resumption of mining at the captive mines removes fear of widespread curtailment in pig iron production over coming weeks. Expectations now are that iron production will be back to pre-strike levels within the next week or so. The supply situation, however, is unchanged from the tight condition of past months. Merchant iron buyers are right up against it to get iron in sufficient quantity to satisfy their requirements. However, signs of some slackening in casting demand coming from certain directions may hint of an easing off in iron demand in the not distant future. To what extent allocation of iron to the housing program will cut available supply for the general market still presents a question which is bothering buyers.

Buffalo—Rumblings of higher pig iron prices seem to be growing louder as one of the leading producers that sells on the fringe of the local switching district raised prices $4 a ton. Local producers, however, continued to do business at old prices with a protection clause in contracts that guarantees "price at time of shipment."

Chicago — A leading producer of pig iron here has increased pig iron prices $4 a ton across the board, effective July 12. Basic is now priced at $42.50; No. 2 foundry, $43; malleable, $43.50; bessemer, $44. Other interests maintained previous prices last week, although it is regarded merely a matter of time until all match the new level.

Foundries continue their pressure for iron deliveries and are forced to regulate melting operations according to iron receipts. Some consumers are now feeling the effect of the explosion at Carnegie-Illinois South Works on July 2 which idled five blast furnaces. Two of these furnaces were restored last week; two more are scheduled to come back this week, and the fifth, in about another week. Of the district's 43 furnaces, 37 are operating.

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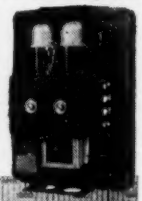

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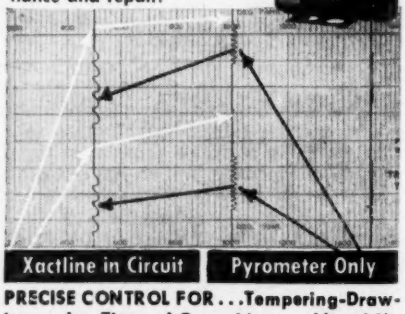

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Scrap . . .

Scrap Prices, Page 152

Price formula setup weakens in several districts as buying competition increases

Buffalo—Predictions were made here last week that the present price formula for scrap purchases will be terminated as current contracts are completed. Dealers continued to pay above the formula to cover orders outstanding. This was a general reflection that many deals have various tie-in phases that make it possible to pay above the formula and still make a profit. Some mills are putting the pressure on customers to reciprocate with their scrap.

Local dealers attribute strength of the market to raids on the area's supplies by consumers from Pittsburgh and Youngstown districts.

Cast scrap continues on the soft side as foundries are unable to get an adequate supply of merchant iron for melt. Prices on mixed cupola slipped to a range of $55 to $60, while a limited supply of No. 1 cupola was placed at $60 to $62.

Boston — Formula price structure has been cracked on heavy melting steel scrap with $36.50 shipping point frequently quoted for number one. Buying at the higher levels is not in heavy volume, but more transactions are closed above the formula price.

New York — Brokers have jumped their prices on No. 1 heavy melting steel $2.50 a ton and even higher in some cases. Current range is $36.50 to $37, f.o.b. shipping point, and the opinion holds in some quarters that still higher offerings will be made before the turn of another week—offerings that may also effect other grades of open hearth steel.

Philadelphia — Steel scrap prices are strong, with No. 1 heavy melting up 50 cents to a spread of $42.50 to $43.50, delivered. Other open-hearth grades are unchanged, but early increases are considered likely.

Cast grades are less strong than steel, but reflecting no weakness, with all leading grades unchanged.

Pittsburgh—The scrap market here is described as "deader than a doornail." Substantial buying by the mills is lacking but tonnage continues to come into plants an old orders. Some shipments from distant points are reported at delivered prices up to $46 for heavy melting. However, it is impossible to verify this with some observers of the opinion even higher delivered prices may apply on some tonnage. Movement of a substantial tonnage of scrap from this district to the Cleveland district plant of Jones & Laughlin Steel Corp. was reported last week. Flow of material is noticeably down and, as a result, the market undertone is decidedly stronger. Prices, however, remain unchanged with heavy melting at the formula level of $40 to $40.50.

Abandonment of the basing point system of pricing steel will have no immediate effect on the scrap market. For the long term, however, the outlook holds a degree of uncertainty for scrap. Should steel production curtailment be forced at some points due to inability of producers to attract sufficient business to their

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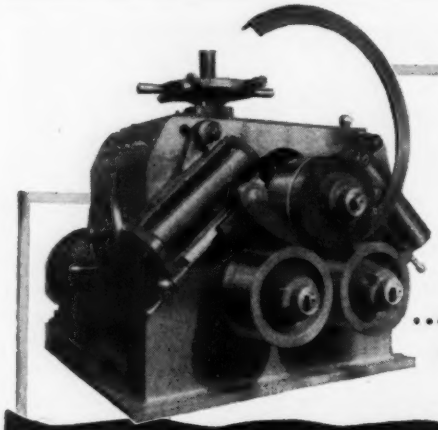

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mills, scrap distribution would be affected. This, however, is a matter of no immediate concern to the scrap trade.

Chicago — The scrap market here grows firmer day-by-day but mills so far refuse to budge from their existing price schedule of $39.50, delivered, for heavy melting steel. Brokers are freely paying up to $2.00 above this. Some grades of railroad scrap are rising sharply, but here again mills maintain schedule for what they are able to acquire.

Detroit—Scrap market finds itself in the anomalous position of many brokers paying $1.50 a ton over the formula price which is $36.50 per ton delivered at mills here, and at the same time local mill buyers reaffirm their strict adherence to the formula price. Possible explanations are that brokers are short on mill orders and have to pay the higher figure to make good on shipments, or that they are furnishing tonnage to steel buyers at a premium price who in turn exchange the scrap for new steel at the mills and are credited with only the formula price. In the latter case, the steel buyer takes the rap; in the former, the scrap dealer or broker. The strange case is repeated here of a dealer who had an order for 100 tons at $36.50, canceled it and entered a new order for 200 tons at $38. One excuse offered for higher prices is that they must be paid to prevent the scrap from going out of this area.

Cleveland — Open-hearth scrap prices remain at formulas here, although demand is increasingly strong. However, there are numerous reports of buyers secretly paying above formulas.

The strong tone reportedly results from a reduced flow of scrap as a result of vacations in the scrap-generating plants, reduced steel shipments to such plants, hot weather which slows workers, and crop harvest work which cuts the flow of country scrap.

Demand for foundry grades of scrap is strengthening again after a slight let-up due to vacations in foundries. Also adding strength is a tightening in the pig iron supply.

Ferroalloys . . .

Ferroalloy Prices, Page 149

New York—Electro Metallurgical Sales Corp. is quoting ferromanganese on the basis of f.o.b. works and warehouses, effective as of July 1. This means f.o.b. Welland, Ont., Alloy, W. Va., and Niagara Falls, and at various warehouses. Price schedules reflect no change except in the method of quoting.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 148

Cleveland — Because of increased operating costs, including a wage boost to its employees, Diamond Alkali Co. raised its oven foundry coke prices 90c a net ton July 12, making the price f.o.b. ovens at Painesville, O., $20.90.

Boston — Foundry coke has advanced $1 per ton to $22.75, delivered consumer siding, effective July 12. Increased costs are assigned the

reason for the increase. This advance comes less than a month after an increase in pig iron prices of $3.75 for third quarter by Mystic Iron Works and presumably is an additional cost to the Everett furnace not included in the recent iron quotation.

Chicago — Oven foundry coke at Indianapolis ovens was advanced 75 cents a ton July 10 to $20.85; at Terre Haute oven, by the same amount to $21. So far, the Chicago outside-delivered and delivered prices remain unchanged at $19.50 and $20.80, respectively.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

8500 tons, first section, express highway, East Boston, Mass., to Harris Structural Steel Co., New York; V. Barletta Co., Boston, general contractor.

2214 tons, also 61 tons cast, Washington state Wenatchee bridge, to Columbia Steel Co., Portland, Oreg.; General Construction Co., general contractor, Seattle.

1775 tons, terminal, Greyhound Bus Lines, Chicago, to American Bridge Co., Pittsburgh.

400 tons, sheet steel piling, Washington state bridge Wenatchee to Columbia Steel Co., Portland, Oreg.; General Construction Co., Seattle, contractor.

400 tons, addition, Abbott Laboratories, North Chicago, Ill., to American Bridge Co., Pittsburgh.

130 tons, bridge, project F 04(4), Wood county, Wis., for state, to American Bridge Co., Pittsburgh.

STRUCTURAL STEEL PENDING

1400 tons, Canyon Ferry dam, Montana; bid call by Bureau of Reclamation, Denver, out about July 26.

1000 tons, Haasac pier, Boston; bids July 30.

360 tons, three-span state bridge, Beverly, Mass., bids in.

125 tons, Conibear shell house, University of Washington, Seattle; Strand & Sons, Seattle, low for general contract, $218,035.

Unstated, expansion, new buildings, conveyors and other facilities, Tacoma smelter; bid date unannounced.

Unstated, miscellaneous steel and aluminum, for Grand Coulee power plant; bids to Bureau of Reclamation, Denver, July 29; sch. 2318.

REINFORCING BARS . . .

REINFORCING BARS PLACED

500 tons, Washington state bridge, Wenatchee, to Bethlehem Pacific Coast Steel Corp., Seattle; General Construction Co., Seattle, contractor.

500 tons, school structures and miscellaneous projects, small tonnages, to Bethlehem Pacific Coast Steel Corp., Seattle.

110 tons, Electrical Union building, Seattle, to Bethlehem Pacific Coast Steel Corp., Seattle; Wick & Dahlgren, Seattle, general contractor.

100 tons, administration building, University of Montana, to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

2350 tons, concrete dam and power house, Missouri Basin project, 17 miles east of Helena, Mont.; bids to Bureau of Reclamation, Denver; project also requires 335 tons, penstocks and outlet pipe; 700 tons, radial gates and hoists; placing of the last two only.

2100 tons, Canyon Ferry dam and powerhouse, Montana; bid call by Bureau of Reclamation, Denver, about July 26.

1300 tons, Public Safety building, Seattle; bids in July 15.

950 tons, canal and headworks, Columbia Basin project, near Stratford, Wash.; bids

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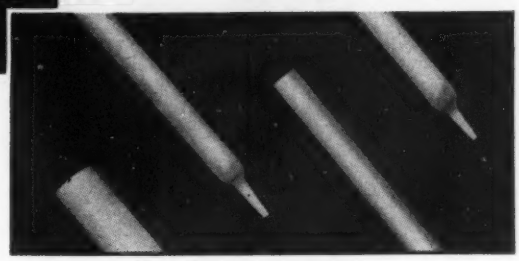

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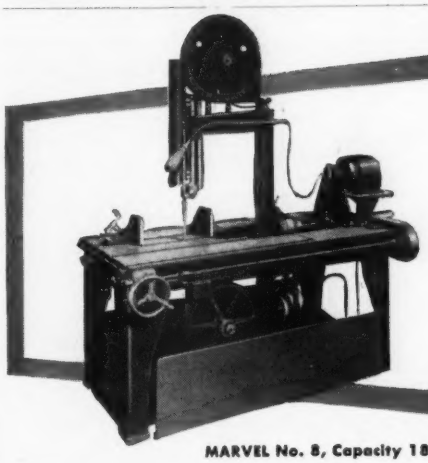

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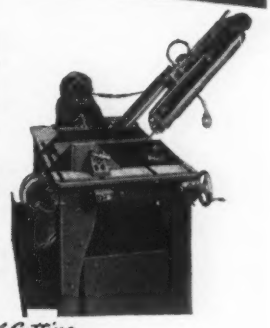

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340 tons, substructure, Housatonic river bridge, Shelton-Derby, Conn.; bids in, Hartford.

250 tons, Washington state highway projects, Whatcom and Grays Harbor counties; bids to Olympia, July 23.

170 tons, bridge and approaches, Fort Point channel, Dorchester avenue, Boston; bids in.

Unstated, Engineering building, Gonzaga College, Spokane, Wash.; general contract to Gus. Bouten, Spokane.

Unstated, 14-story, $3 million apartment and garage; general contract to Nettleton, Baldwin, Anderson Inc., Seattle.

Unstated, 7-story addition to J. C. Penney store building, Seattle; general contract to S. S. Mullen, Seattle.

Unstated, addition to office building, General Insurance Co. of America, 4325 Brooklyn Ave., Seattle; schedules for 9 stories and two stories; S. S. Mullen, Seattle, low $600,000 and $237,000, respectively.

PLATES . . .

PLATES PENDING

300 tons, Canyon Ferry dam, Montana; bid call by Bureau of Reclamation, Denver, out about July 26.

100 tons or more, two 100,000-gallon water tanks with 100-foot towers and one 250,000-gallon tank with 80-foot tower; bids July 22, Corps of Engineers, Portland, Oreg., district; design, fabrication and erecting.

PIPE . . .

CAST IRON PIPE PENDING

350 tons, cast iron pipe for water main, including 950 feet, 12-inch; 6825 feet, 10-inch; 6125 feet, 8-inch; 1700 feet, 6-inch; and 250 feet, 4-inch, village of Lyons, Ill.; bids July 20.

RAILS, CARS . . .

RAILROAD CARS PLACED

Alabama Great Southern, 150 mill type gondolas with drop ends, to Pressed Steel Car Co., McKees Rocks, Pa.

Delaware, Lackawanna & Western, 600 freight cars and 20 passenger coaches, with 300 fifty-ton box cars going to Magor Car Corp., New York; 200 fifty-ton box cars and 10 passenger coaches to the Pullman-Standard Car Mfg. Co., Chicago; and 100 seventy-ton covered hopper cars and 10 passenger cars to American Car & Foundry Co., New York; this railroad is still in the market for 500 fifty-ton hopper cars.

Gulf, Mobile & Ohio, 500 hopper cars, to Pullman-Standard Car Mfg. Co.'s Bessemer, Ala., plant.

Kansas City Southern, 400 seventy-ton hoppers, to Pullman-Standard Car Mfg. Co., Butler, Pa.

Nashville, Chattanooga & St. Louis, 500 fifty-ton hopper cars and 500 fifty-ton gondola cars to Pullman-Standard Car Mfg. Co., Chicago.

Seaboard Air Lines, 150 seventy-ton hoppers and 100 seventy-ton covered hoppers, to Pullman-Standard Car Mfg. Co., Butler, Pa.

St. Louis-San Francisco, 700 hopper cars, to Pullman-Standard Car Mfg. Co.'s Bessemer, Ala., plant.

RAILROAD CARS PENDING

Transportation Corps, Army, 200 tank cars; American Car & Foundry Co., New York, low, $4895 each, delivery third quarter, 1949.

LOCOMOTIVES PLACED

Southern Pacific, 95 diesel-electric locomotives; thirty 6000-horsepower and forty 1000-horsepower switchers to Electro-Motive Division, General Motors Corp., LaGrange, Ill.; fifteen 1500-horsepower, to Baldwin Locomotive Works, Eddystone, Pa.; ten 70-ton switchers to General Electric Co., Schenectady, N. Y.

CONSTRUCTION AND ENTERPRISE

ALABAMA

ANNISTON, ALA.—Alabama Pipe Co., c/o Strickland & Schroeder, engineer, First National Bank Bldg., Birmingham, has awarded a $250,000 contract to Andrew, Dawson & Shenesey for construction of a pipe plant addition.

BIRMINGHAM—Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., will alter and add to its plant here at a cost of $176,000.

CALIFORNIA

RICHMOND—Standard Oil Co., 225 Bush St., San Francisco, has awarded a $3,500,000 contract to Bechtel Corp., 220 Bush St., San Francisco, for construction of a wax plant at the Richmond refinery.

COLORADO

DENVER—Western Electric Co., 195 Broadway, New York, plans to build a $2 million warehouse on E. 40th Ave. betwen Columbine and Clayton Sts.

DENVER—Gates Rubber Co., 999 South Broadway, plans to build a $1,250,000 warehouse. Raymond H. Ervin, 616 Patterson building, engineer and architect.

CONNECTICUT

NEW CANAAN—Cushman Bros. Co., 19 Grove St., Stamford, plans to build a $68,000 reinforced-concrete steel factory; William A. Grey, West Redding, architect.

STAMFORD—Plastic Mfg. Co. Inc., 280 Fairfield Ave., plans to build a $125,000 factory; Fletcher Thompson Inc., 211 State St., Bridgeport, architect.

GEORGIA

ATLANTA—Electric Storage Battery Co., c/o Robert & Co., architect, Bona Allen Bldg., has awarded a $600,000 contract to Beers Construction Co. for the erection of a battery plant.

ILLINOIS

CHICAGO—General Electric Co. has begun construction of a $500,000 plant at 47th St. and Kolin Ave. for use by its apparatus department.

INDIANA

INDIANAPOLIS—Graybar Electric Co., 400 W. New York St., has awarded a $100,000 contract to Berke Construction Co., 1831 N. Grand St., for erection of a 1-story warehouse.

INDIANAPOLIS — General Motors Corp., United Motors Division, H. S. Station, zone manager, 730 E. Washington St., has awarded a $500,000 contract to Berke Construction Co., 1831 N. Grand St., for erection of a warehouse.

KENTUCKY

RUSSELL, KY.—Chesapeake & Ohio Railway, L. T. Nuckols, chief engineer, 823 Main St., Richmond, Va., has awarded a $220,700 contract to Hughes-Foulkrod Co., Schaffer Bldg., Philadelphia, for extensions to a roundhouse here, including installation of five electric drop pit tables.

MARYLAND

BALTIMORE — Mutual Chemical Co. of America, 1348 Block St., has awarded a $1 million contract to Sanderson & Porter, 52 William St., New York, for design and construction repairs, extensions to its plant.

MISSOURI

EAST ST. LOUIS, MO.—Aluminum Ore Co., 3300 Missouri Ave., has awarded a general contract to Fruin-Colnon Contracting Co., 1706 Olive St., St. Louis, for erection of a plant for manufacture of fluoride chemicals

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strains fuel with
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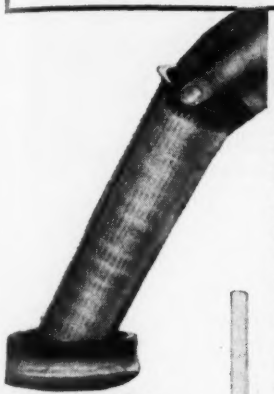
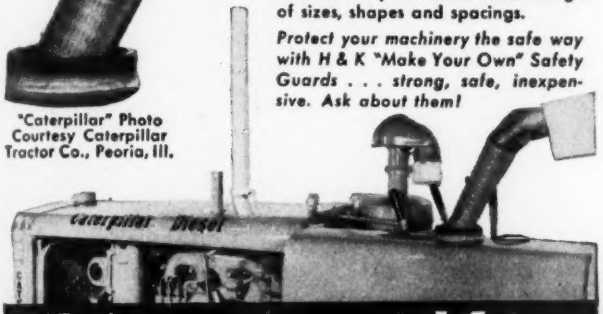


Caterpillar Tractor Co. successfully employs H & K Perforated Metals in the design of its famous line of "Caterpillar" Diesel Tractors. This particular application is a fuel strainer—another actual product example of how "H & K Perforated" serves Industry.

For precision perforating of stainless steel and other metals, consult H & K. Other materials—such as plastics, fabrikoids, rubber and plywood—also perforated. Wide range of sizes, shapes and spacings.

Protect your machinery the safe way with H & K "Make Your Own" Safety Guards . . . strong, safe, inexpensive. Ask about them!

"Caterpillar" Photo Courtesy Caterpillar Tractor Co., Peoria, Ill.



The Harrington & King PERFORATING Co.

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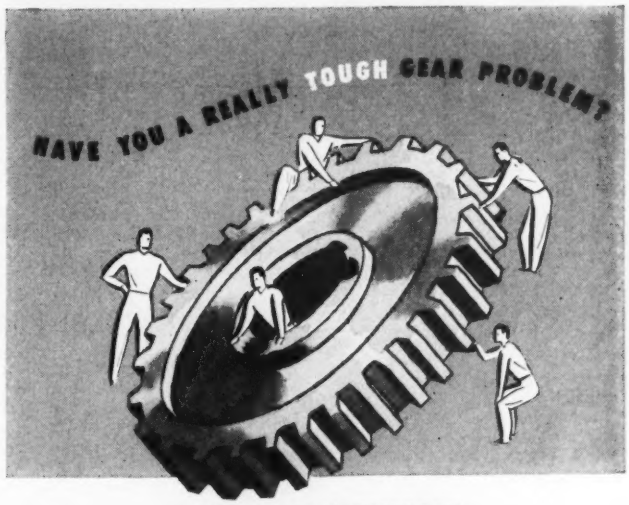

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and ceramic cryolite. Overall cost including equipment will approximate $750,000.

KENNETT, MO.—Local business and civic interests plan to build a $100,000 factory. Elbert L. Ford is chairman of the fund-raising committee.

ST. LOUIS — Municipal Airport Commission has recommended construction of a group of hangars for the Lambert-St. Louis Municipal Airport. Estimated cost is $2 million.

ST. LOUIS—Lindberg Steel Treating Co., 222 North Laflin St., Chicago, has awarded a contract to J. S. Alberici Construction Co., 1550 Irving Ave., this city, for a $50,000 factory building here.

NEW YORK

BROOKLYN—J. F. D. Realty Corp. has awarded a contract through W. A. Lacerenza, architect, 44 Court St., to Pioneer Engineering Corp., 48 Pollack Ave., Jersey City, N. J., for a $200,000 factory building. Steel award was made to Capitol Steel Corp., 15 Park Row, New York.

NORTH DAKOTA

GRAND FORKS—Nodak Rural Electric Cooperative will let contracts soon for a shop, storage building, and offices; estimated cost, $125,000; Grosz & Anderson, Grand Forks, architects.

OHIO

CLEVELAND—American Roller Die Corp., 20500 St. Clair Ave., has purchased patents on machinery formerly owned by McKinney Tool Co. and will produce complete machines for cold metal forming.

CLEVELAND—Armet Alloys Inc. has been organized by Abraham Rubin, 3000 Scarborough Road, a former official of the National Smelting Co., to manufacture nonferrous metals and alloys.

CLEVELAND—Harold and Walter Schott have formed a new $2 million farm implement company with the merger of Heintz & Munschauer of Buffalo, N. Y., and Farm Tools Inc., formerly an Indiana company. The Heintz plant is to be closed and all its production transferred to Mansfield, O.

CLEVELAND—Manufacturers Trading Corp., Guardian building, has purchased the Seneca Falls, N. Y., plant of the Rumsey Mfg. Corp. for $137,500. The latter company manufactured power lawn motors and heavy jacks for garages.

HUBBARD, O.—Trimedge Inc., 4021 Mahoning Ave., Youngstown, plans to build a $750,000 plant here to replace one burned down last year. The company makes metal trim.

MASSILLON, O.—Massillon Aluminum Division, Ekco Products Co., State Ave., plans to build an $80,000 warehouse.

SPRINGFIELD, O. — International Harvester Co., Chicago, has acquired two new buildings here for preparation of trucks for export and for assembling engines.

STEUBENVILLE, O.—Fort Steuben Metal Products Co. is being organized to engage in the fabrication of metal products.

SUGARCREEK O.—Apollo Metal Products Inc. has been formed to engage in sheet metal operations.

YOUNGSTOWN—J. A. McMahon Inc. has been organized to manufacture machinery, engage in general metal faabrication and operate a general building contractors business.

OREGON

PORTLAND, OREG.—War Assets Administration has awarded a contract to Lawrence Warehousing Co. to repair flood damage at plants of Oregon Shipbuilding, Willamette Iron & Steel Co. and Swan Island shipyards plants.

PENNSYLVANIA

PHILADELPHIA—Jacquard Knitting Machine Co., G and Lycoming Sts., plans to build a $80,000 plant; Joseph Margolis, 2206 St. James St., architect.

WISCONSIN

LAONA, WIS.—Connor Lumber & Land Co. has awarded a $165,000 contract to Edward H. Meyer Construction Co., 75 Main St., Oshkosh, for erection of an electric generating plant.

WAUWATOSA, WIS. — Aluminum Building Products Co., 1115 S. 41st St., Milwaukee, has awarded a contract to M. B. Colfman, 135 W. Wells St., Milwaukee, for a factory.

ALASKA

FAIRBANKS—Plans have been prepared by Paul Thiry, Seattle, architect, for a proposed $250,000 sports arena. Steel trusses and corrugated metal exterior are specified.

CANADA

VANCOUVER, B. C.—H. R. MacMillan Export Co. has awarded general contract to British Columbia Bridge & Dredging Co. Ltd. for proposed $12 million pulp mill. Completion is scheduled for 1950.

PRICES OF LEADING FERROALLOYS PRODUCTS

(*Concluded from Page* 149)

c.l. and 0.9c for l.c.l.; Western, add 0.35c for c.l. and 1.5c for l.c.l. Freight allowed. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Eastern Zone, contract, carload, bulk, 8.7c per lb of briquet, c.l. packaged 9.5c, ton lot 10.3c, less ton 11.2c; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.8c for c.l. and 2.5c for l.c.l. Freight allowed. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Eastern Zone, contract, c.l. bulk 8.75c per lb of briquet, c.l. packed 9.55c, ton lot 10.35c, less ton 11.25c; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.8c for c.l. and 2.5c for l.c.l. Freight allowed. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Eastern Zone, contract, carload, bulk 5.1c per lb of briquet, c.l. packed 5.25c, ton lot 6.7c, less ton 7.6c. **(Small size**—weighing approx. 2½ lb and containing exactly 1 lb of Si). Eastern Zone, carload, bulk 5.25c c.l. packed 6.05c, ton lots 6.85c, less ton 7.75c; Central, add 0.25c for c.l. and 0.6c for l.c.l.; Western, add 0.45c for c.l. and 0.9c for l.c.l. Freight allowed. Add 0.25c for notching, small size only. Spot, add 0.25c.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18%, and Si 53-59%). Eastern Zone, contract, carload, packed 19.0c, ton lot 19.8c, less ton 20.8c; Central, add 0.5c for c.l. and 0.85c for l.c.l.; Western, add 2.55c for c.l. and 2.6c for l.c.l. Freight allowed. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Eastern Zone, contract, carload, lump, bulk 16.25c per lb of alloy, carload packed 16.45c, ton lot 19.35c, less ton 20.85c; Central, add 0.5c for c.l. and 0.75c for l.c.l.; Western, add 2.55c for c.l. and 2.90c for l.c.l. Freight allowed. Spot, add 0.25c.

VANADIUM ALLOYS

Ferrovanadium: Open Hearth Grade (Va 50-55%, Si 8% max., C 3% max.). Eastern Zone, contract, any quantity, $2.90 per lb of contained Va; Central, add 2c for c.l. and 3c for l.c.l.; Western, add 6c for c.l. and 9c for l.c.l. Freight allowed. Spot, add 10c. **Special Grade** (Va 50-55%, Si 4% max., C 1% max.), $3. **High Speed Grade** (Va 50-55%, Si 1.50% max., C .20% max.), $3.10.

Vanadium Oxide: All Zones, contract, less carload lots, $1.20 per lb of contained V_2O_5. Spot, add 5c.

Grainal: Vanadium Grainal No. 1, 93c; No. 6, 63c; No. 79, 45c; all fob Bridgeville, Pa., usual freight allowance.

TITANIUM ALLOYS

Ferrotitanium: (Ti 20-25%, Al 3% max., Si 4% max., C 0.10% max.). Eastern Zone, contract, ton lot, 2" x D, $1.35 per lb of contained Ti, less ton $1.40. (Ti 40-45%, Al 7% max., Si 4% max., C 0.10% max.). Ton lot $1.23, less ton $1.25; Central, add 4c for 20-25% Ti grade, and 2.1c for 40-45% grade; Western, add 13.5c for 20-25% Ti grade, and 7.2c for 40-45% grade. Freight allowed. Spot, add 5c.

Ferrotitanium, High-Carbon: (15-20%). Contract basis, per net ton, fob Niagara Falls, N. Y., freight allowed to destination east of Mississippi river and north of Baltimore and St. Louis, 6.8% C, $142.50; 3-5% C, $157.50.

TUNGSTEN ALLOYS

Ferrotungsten: (W 70-80%). Eastern Zone, contract, 10,000 lb W or more, $2.25 per lb of contained W; 200 lb W to 10,000 lb W, $2.35; less than 2000 lb W, $2.47. Spot, add 2c.

Tungsten Powder: (W 98.8% min.). Eastern Zone, contract or spot, 1000 lb or more, $2.90 per lb of contained W; less than 1000 lb W, $3.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloys: (Zr 12-15%, Si 39-43%, Fe 40-45%, C 0.20% max.). Eastern Zone, contract, c.l., lump, bulk 6c per lb of alloy, c.l. packed 6.75c, ton lot 7.5c, less ton 8.35c; Central, add 0.25c for c.l. and 1.1c for l.c.l.; Western, add 0.6c for c.l. and 3.95c for l.c.l. Freight allowed. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Eastern Zone, contract, carload, lump, packed 18.4c per lb of alloy, ton lot 19.15c, less ton 20.40c; Central, add 0.6c for c.l. and 1.05c for l.c.l.; Western add 3.05c for c.l. and 4c for l.c.l. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Eastern Zone contract, 100 lb or more. 1" x D, $1.20 per lb of alloy, freight allowed. Less than 100 lb $1.30; Central, add 0.75c; Western add 2.9c, freight allowed. Spot, add 5c.

Borosil: (3 to 4% B, 40 to 45% Si), $6.25 per lb contained B, fob Philo, O., freight not exceeding St. Louis rate allowed.

Bortam (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 0.90 to 1.15%). Net ton to carload, 8c per lb, fob Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Mn 5% max., Si 8% max., C 0.5% max.). Eastern Zone, contract, ton lot, 2" x D, $2.50 per lb of contained Cb, less ton $2.55; Central, add 1.65c; Western, add 6.45c. Freight allowed. Spot, add 10c.

CMSZ Mixes: (No. 4—Cr 45-49%, Mn 4-6%, Si 18-21%, Zr 1.25-1.75%, C 3-4.5%; No. 5—Cr 50-56%, Mn 4-6%, Si 13.50-16.0%, Zr 0.75-1.25%, C 3.50-5%). Eastern Zone, carload, 12 M x D, carload packed 17.25c per lb of material, ton lot 18.00c, less ton 19.25c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l., and 3.05c for l.c.l. Freight allowed.

Silcaz Alloy: (Si 35-40%, Ca 9-11%; Al 6-8%, Zr 3-5%, Ti 9-11%, Boron 0.55-0.75%). Eastern Zone, carload, packed, 1" x D, 39c per lb of alloy, ton lot 41c, less ton 43c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l. and 3.05c for l.c.l. Freight allowed.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.). Eastern Zone, contract, carload, packed, ½" x 12 M, 15.0c per lb of alloy, ton lot 15.75c, less ton 17.0c; Central, add 0.3c for c.l. and 1.1c for l.c.l.; Western, add 0.3c for c.l. and 3.05c for l.c.l. Freight allowed. Spot, add 0.25c.

Graphidox No. 4: (Si 56%, Ca 5%, Ti 9%) C.l. packed, 16.50c per lb. of alloy; ton lots 17.90c; less ton lots 19.40c, fob Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%; V-7, Cr 28-32%, Si 15-21%, Mn 14-16%) C.l. packed, 12.95c per lb. of alloy; ton lots 14.60c; less ton lots 15.85c, fob Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx. 20% each Si, Mn, Al). Packed, lump, carload 11c, ton lots 11.25c, smaller lots 11.75c per lb alloy; freight not exceeding St. Louis rate allowed.

Ferrophosphorus (23-25% based on 24% P content with unitage of $3 for each 1% of P above or below the base): Gross tons per carload, fob sellers' works, Mt. Pleasant, or Siglo, Tenn.; $65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo, fob Langeloth and Washington, Pa., furnace, any quantity 95.00c.